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TRANSCRIPT OF HEARING: POLLUTION OF INTERSTATE WATERS MISSOURI RIVER. VOLUME 2. HELD AT SIOUX CITY IOWA ON 23-27 MARCH 1959

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TRANSCRIPT OF HEARING

POLLUTION OF INTERSTATE WATERS
MISSOURI RIVER

SIOUX CITY, IOWA

VOLUME 2 OF 2 VOLUMES

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

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MARCH 23 - 27, 1959

278

MORNING SESSION, WEDNESDAY, MARCH 25, 1959

CHAIRMAN WILSON: Is the Government ready?

MR. STEIN: Yes, we are.

MR. DETMAR: Ready, Sir.

CHAIRMAN WILSON: Is the city ready, Mr. Davis?

MR. DAVIS: Yes, sir.

CHAIRMAN WILSON: Proceed, gentlemen.

MR. DETMAR: Call Mr. Wayne Ross.

CHAIRMAN WILSON: Before this witness goes on I should announce that we will adjourn a little before noon, around a quarter to 12 or whenever you get through with the witnesses around that time, so that we can get an early start for the boat trip. And we will resume here this afternoon just as soon as we get back from that trip. My understanding is that it shouldn't take over an hour on the river, so that we probably shall not be gone later than around 2:30. I will check that with Mr. Hopkins and make an announcement when we adjourn this noon.

MR. DETMAR: Let the record show that this witness has been sworn.

WAYNE ROSS,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Ross, will you give this lady your full name, address and occupation?

A. Wayne Ross, 2800 Third Avenue, South Sioux City. I do commercial fishing and I build boats.

Q. Mr. Ross, where do you do your fishing?

A. Well, the last few years I have been doing most of it north of Sioux City.

Q. Is there a particular reason why you fish north of Sioux City?

A. Well, yes, there is a couple reasons. One reason, I get a lot of inquiry where I catch them when I get to sell them. A lot of people don't like to buy them if they are caught south of Sioux City.

Q. Why don't people like to buy them if you catch them south of Sioux City?

A. Well, I think a lot of it, the way they talk, is that it is just the idea what they figure the fish is eating below these sewers. And I have some kick of them getting kind of an oily, gassy taste out of fish that I catch down there.

Q. Mr. Ross, as a commercial fisherman you must have had plenty of opportunity to observe the river at Sioux City. Can you tell us anything about the condition of the river with respect to pollution?

A. Well, at certain times it is bad in places below here. There is chunks of, oh, I would say it was like suet floating. And out of the Floyd River at times it is practically red, the water is, with blood. In the summer months there is quite an odor down in there.

Q. Does this affect your fishing equipment and your fishing operations in any way?

A. If you fish close to Sioux City it does, you get a lot of that grease and scum on your net and you pick up waste, animal waste and human waste, and other things that you don't like to talk about in your net and you have to wash it out, clean it up.

Q. Mr. Ross, have you observed people using the river who may be affected by its polluted condition?

A. Well, I see a lot of young boys, oh, anywheres from eight to twenty swimming in places what I sure wouldn't want to be swimming.

Q. You mean they are swimming in the polluted sections of the river?

A. Yes, you see a lot of boys swimming on the Nebraska side below the combination bridge and clear down around the iron bridge, the iron bridge is the railroad bridge. There is a lot of boys swims in there and I sure wouldn't want to swim in it. I don't know, I am not an authority whether it is bad health or anything like that, but I sure wouldn't want to swim in it.

MR. DETMAR: The Government has no further questions.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. I didn't hear where you lived, Mr. Ross?

A. 2800 Third Avenue, South Sioux City.

Q. And you are a commercial fisherman?

A. I have had a commercial license for about the last 12 years here in South Sioux City and before that I carried a commercial license at Winnebago for several years.

Q. For several years at Winnebago, Nebraska?

A. Yes.

Q. Who issues that license?

A. The Nebraska State Forestation and Parks

Q. In other words, the State of Nebraska?

A. That is right.

Q. How far below Sioux City, roughly, is Winnebago, Nebraska, on the river?

A. I wouldn't know by river miles. It is 21 miles road miles. I suppose it would be in the vicinity of 30 miles river miles.

Q. And how many years did you fish there?

A. Well, I was born and raised in Winnebago and I fished there ever since I was a kid, and I commercial fished ever since I was 20 years old.

Q. How old are you now?

A. I am 50.

Q. So you have been in commercial fishing for 30 years either at Winnebago or at--

A. South Sioux City.

Q. --South Sioux City?

A. Yes.

Q. What kind of fish do you ordinarily catch?

A. Carp is your -- if it wasn't for carp in the Missouri River there wouldn't be any commercial fishing, you just as well put it that way. You do catch catfish and buffalo, but carp is the fish that you catch.

Q. Where is your market located, if you have one, Wayne? I don't know.

A. I don't have a consistent market. In the spring months of the year I sell fish right at home, I have a live tank, I sell some fish there. I sell a lot of my fish to fish fries, guys give me an order for 100 or 200 pounds of dressed fish and I dress them and deliver them to them.

Q. And ordinarily that is dressed carp?

A. Yes, that is right.

Q. Where is your home on the river, above the combination bridge?

A. I dock one of my boats just above the combination bridge and then I own a little tract of land up, it is about 12 river miles up there, and I most generally keep a boat up there too.

Q. Twelve river miles up river--

A. Yes.

Q. --From the combination bridge?

A. That is right.

Q. Which would put it near what town, if it does at all?

A. It is almost straight north of Willis. Of course Willis is quite a little ways from the river, but in getting directions it is north of Willis and east of Ponca.

Q. And both of the towns that you have referred to are Nebraska towns?

A. That is right.

Q. So actually your principal base of operations is north of Sioux City, is that correct?

A. It has been the last few years.

Q. Yes

A. Although I can still catch more fish south if I--

Q. Well, I am coming to that, Wayne. Now, you keep a boat down here at Sioux City?

A. Yes.

Q. Right practically under the combination bridge, is that correct.

MR. DAVIS: Let the record show he nodded his head affirmatively.

Q. (By Mr. Davis.) I don't know whether you have seen this picture, which is the Government Exhibit No. 12, or not, Wayne, but I would ask you to look at it now. See where I am pointing with my pencil (indicating) at the combination bridge?

A. That is right.

Q. And where you keep your boat is right under the bridge?

A. It is between the bridge and the first block north.

Q. On the Nebraska side?

A. That is right.

Q. The dock is furnished or it belongs to Frank Keller, does it not?

A. It belongs to the City of South Sioux. Frank lives on the east side of the alley and from the alley north belongs to the City of South Sioux.

Q. I see, up river?

A. Yes.

Q. Now, Perry Creek, as you know, empties into the Missouri down river from the combination bridge, is that correct?

A. That is right.

Q. And only the Sioux River comes in up river from the combination bridge, correct?

A. I believe that is right.

Q. What kind of boat equipment do you use for your fishing that you do here in the Sioux City area?

A. Redwood flat bottom river boat.

Q. About what is the size of it, Wayne?

A. Eighteen foot long and fifteen inches wide on the inside at the bottom.

Q. And how is it powered?

A. Twenty-five horse Johnson.

Q. Outboard?

A. Yes

Q. Now, in your fishing activities for carp what do you use?

A. Trammel net, hook nets.

Q. And about how big are these nets?

A. Well, one of my trammel nets is 100 yards long and the other one is 75 yards long.

Q. Do you do or have you done within the last several years any fishing in the vicinity of the combination bridge?

A. Last year I did.

Q. And where was it?

A. Right practically under the combination bridge and just north or west.

Q. Up river?

A. Yes, just west there.

Q. A few hundred feet at the most, is that correct?

A. Yes, right there in that little pocket.

Q. And what was the reason for fishing there?

A. Because it is so handy.

Q. And is it also true that the channel goes across towards Sioux City, Iowa, there?

A. It left a pocket there that you could fish easily, sure.

Q. With the trammel net?

A. Yes.

Q. What kind of fish have you been catching there?

A. I caught carp.

Q. Could you describe to the Board the nature of the haul that you made at that particular locality?

A. Well, in one instance I made a good catch there. A lot of times it was just a place to catch a few fish easily. It wasn't a real good place to fish.

Q. What was the biggest catch you ever made there?

A. I suppose a hundred pounds overnight.

Q. Of carp?

A. Yes.

Q. Did you sell those?

A. Yes.

Q. Did any of them come back to you from your customers, that you recall?

A. I had one guy done a lot of hollering, yes.

Q. He did a lot of hollering?

A. Yes. He didn't ask for any fish. I offered to give him some to take in their place but he didn't take them, but he said they tasted very bad.

Q. Bud did you sell that full hundred pounds?

A. Yes.

Q. You did? To people in Sioux City or South Sioux?

A. I don't believe I sold any any of those to Sioux City people.

Q. Well, to whom did you sell them?

A. Well, South Sioux City people.

Q. Right. Did any of them come back that they wanted refunds or other fish?

A. Well, just this one fellow come back and wanted to know where in the world I caught those fish, that they sure tasted bad.

Q. Just one man?

A. Yes, sir.

Q. Was he a steady customer?

A. Yes.

Q. He was? All right. Now, where have you fished south or down river from the combination bridge?

A. I used to fish down by the air base.

Q. And where with reference to to the air base?

A. Just below it.

Q. Is that a pocket in the river on the Iowa side?

A. That is right.

Q. Is it what you fishermen call the stink hole?

A. That is right.

Q. Would you describe how it works in reference to the river itself, that is where does it lie?

A. Well, the river some years ago took a dive over into Iowa and cut out a big hole and then it cut back to the Nebraska side and left a big pocket in there.

Q. And what comes into this stink hole from the Iowa side?

A. Sewer from the air base.

Q. And is there raw sewage in there that you observed?

A. Well, yes, it is just about the same as there is when you have a pocket here along Sioux City, it is the same, you have the same thing to contend with.

Q. How big is this pocket?

A. Well, it is pretty good-sized. I suppose it covers, oh, I would have to measure it in acres, I wouldn't know how to tell you in any other way.

Q. All right.

A. Probably three acres, maybe four acres.

Q. And it is eastward from the river itself, is that right?

A. That is right. At the present time it is shut off so you can't even get in it. It has been -- Last summer they run a dike down along there and rocked it, so the sewage from the air base wouldn't even be getting into the river at the present time, it is just getting into this pocket and it is fenced off.

Q. It is fenced off right adjacent to the river, is that correct?

A. That is right.

Q. Now, when is the last time you fished in there?

A. Oh, 195--let's see--in 1954 I guess when I fished in there quite a little. I was in there once last year, but to get in there it was just while the river was high and you had to go over the piling. You had to back up and take a run and jump the piling with your boat to get in there and I was in there once.

Q. And of course if you could jump the pilings when the river is high to get in there to fish, the sewage could get out, could it not?

A. Well, then it would be that high it would be possible, yes, but--

Q. What--

A. Now it takes a six foot or six and a half foot river in order to do that and I think your records will show that we only had a six or above a six foot river about one day last year.

Q. Did some of the other commercial fishermen get into the stink hole last summer that you know of?

A. I took Frank Keller with me the time I went.

Q. What kind of a catch did you make there in the stink hole?

A. Oh, we caught a lot of little fish.

Q. About how many pounds?

A. Frank took them and sold them. I don't know. Probably 250 pounds.

Q. Two hundred fifty pounds of fish?

A. I imagine.

Q. What kind of fish?

A. Carp and buffalo.

Q. Did you fellows sell them?

A. Frank sold them.

Q. Did any of those come back, so far as you know?

A. As far as I know they didn't. He never did say anything to me about it.

Q. Incidentally, what do these carp sell for dressed?

A. We usually get 40 cents a pound for them dressed.

Q. And if the customer takes them on the hoof, so to speak, or just out of the live box how much do they pay?

A. Twenty cents.

Q. Twenty cents. Then they clean them themselves?

A. Yes.

Q. Have you fished at other places south of the Floyd River?

A. I fished down around--I used to fish a lot down around Winnebago. I never got that far south last year. In fact of the case, I only went down the river a couple times and that is when Frank was very short on fish and we went down to catch some.

Q. That was last summer?

A. Yes.

Q. You yourself had been down there, though, in previous years.

A. Yes, in '54 I fished there.

Q. Did you have any difficulty in selling the fish?

A. No.

Q. And none of those were rejected?

A. Yes, I had some holler.

Q. Well, about how many pounds would you catch down there on a trip yourself?

A. Well, just--that year you could just catch whatever you wanted, that is all. You could have caught a thousand pounds or a ton, if you wanted them. You would just take what you could sell and leave the rest.

Q. That is in the stink hole?

A. In the mouth of the stink hole, yes.

Q. You could catch as many fish as you wanted?

A. That is right.

Q. In operating your boat between the combination bridge and the stink hole have you ever observed people fishing along the banks of the Missouri?

A. Oh, yes.

Q. Could you describe to the Board the nature of the individual fishing activities. Where do they fish?

A. Well, from the Floyd River down on nice days, why, there will be a man on about every piling sitting along there with a rod and reel. There is liable to be--from there down to the Government yard it wouldn't be unusual to see 50 men fishing with rod and reels.

Q. Fifty?

A. Yes, it wouldn't be unusual to see that many.

Q. And when you speak of the Government yards you mean the material yard--

A. That is right.

Q. --on the Missouri River up river from the air base outlet?

A. Yes. It is I suppose, a mile down from the mouth of the Floyd, maybe a little farther.

Q. In other words, 50 individual fishermen?

A. That is right.

Q. Have you ever seen people--I believe you testified that you had seen boys swimming in the river in summer time?

A. Yes

Q. Has that been true for the last 12 years you have been here?

A. That is right.

Q. Have you seen people swimming in the river when you were working down around Winnebago?

A. Some, but not much.

Q. Would that be because of the turbulence in the river and the difficulty in getting out in it?

A. Well, yes, and there is not a concentration of people close to it like there would be here.

Q. How many people have you seen swimming, say last summer when you were down to the stink hole and back?

A. Oh, that would be merely an estimate. I suppose on a nice day you would probably see 20 boys along there swimming.

Q. Are you acquainted with any of those boys personally?

A. Oh, not personally, although I know quite a few of them by sight.

Q. Are they still alive and in good health?

A. As far as I know they are.

Q. The past three or four years, or at least since the dam has been closed at Gavins Point, has there been any change in the mumber of game fish in the river?

A. Well, I think here has, although I don't agree with the sentiment of a lot of people that there is as big a gain as they think there is, for this reason, that 20-odd years ago they cut the river off at Winnebago much in the same fashion as they have up here in places and left a big pocket there that was rather a lake and we caught lots of game fish 20 years ago out of that. I think the reason that people are catching game fish more than anything else is that they are running these dikes out into the river and they are leaving these clear ponds behind where these game fish can get out of the current, and I think that is as much of the reason for game fish. Because, whenever it throws a lake along this river, as long as I can remember, there were game fish in it, they was just there, you didn't know how they got there, but when they throwed the lake in and cut it off, you could go fishing, you should catch crappies, they used to call them walleyed pikes, now they call them saugers. So I think they were always in the river more than we realized because we caught them in trammel nets 20 years ago, 25 years ago, we caught those kind of fish in trammel nets then.

Q. Within the last several years have you picked up any game fish?

A. Oh, yes, caught game fish Monday.

Q. What kind?

A. Sauger, crappie and drum, fresh water drum.

Q. What other kinds of game fish have you caught within the last year or so?

A. Northern, small mouth bass, large mouth bass.

Q. And where with reference to Sioux City were these fish caught?

A. I don't ever remember catching any northerns south of Sioux City. I have caught northerns north of Sioux City and I have caught--in the last several years I haven't caught any bass south of Sioux City. I caught bass south of Sioux City years ago, 20 years ago, but in the last few years I haven't.

Q. Have you done much fishing down there?

A. Not since '54.

Q. Right. So that--but so far as you know there are bass?

A. Well, I imagine there are. There always was as far back as I can remember, when you got in the right place you would catch them.

Q. South of Sioux City. What sort of reports do you make to the Nebraska Game Commission concerning the amount of your catch that you sell?

A. You are supposed to turn in as near accurate a report as you can of what you catch and what you sell.

Q. How do they keep--how do you make your reports, Wayne, on a monthly basis?

A. They send you a report that you have got to send in at the end of the year on a monthly basis, yes, sir.

Q. So that on December 31, '58, you send in a report?

A. Well, whenever we send in for a new license is when we do that.

Q. I see. Well, in the last year that you reported about how many pounds total of fish had you taken from the river during the year?

A. Oh, I don't remember. It would just have to be a rough guess as far as I am concerned.

Q. Would it be easier to guess at the average per month?

A. Last year I didn't fish any until April. I had a pretty good April.

Q. About how many pounds?

A. I suppose I caught a thousand pounds of fish in April that I sold. And now the fish that I caught when Keller was with me, I did not turn in because he sold them.

Q. That was 200 pounds or 250?

A. Well, he was with me other times too.

Q. Well, I am just trying to get to the amount. Wayne, during the summer months of '58, for example, what would be your average catch per month?

MR. SAMSON: What month did you say, Mr. Davis?

MR. DAVIS: During the summer months of 1958.

MR. SAMSON: Thank you.

A. Well, that is kind of hard to say because, now, some months if I have boats to build I don't do much fishing, and if I am not working on boats then I fish more.

Q. Well, can you give me just an estimate of what your best month was?

A. I suppose April, a thousand pounds.

Q. And where were those fish caught?

A. They were caught in the vicinity of my camp.

Q. Ten miles north of Sioux City?

A. That is right.

Q. These fish run what, about, apiece, four or five pounds?

A. No, we used to think that you count your fish and multiply it by two and a half and you would about have your weight.

Q. So that a thousand pounds of fish, you must have caught around four hundred fish, something like that?

A. Yes, I believe so.

Q. Out of that number of fish how many were returned to you or were objected to?

A. I only had the only one rejection and that was from the bunch I caught straight across here from the--

Q. In what period of time?

A. That was in April.

Q. Well, I mean have you only had one beef in two or three years, one complaint?

A. Well, that is all I had last year.

Q. All right.

A. Year before I didn't have any. However, I never fished any below the river year before last. In '54 is when I fished below the river. I had several beefs, but I wouldn't say it was unusual for as many fish as I sold.

Q. Now, these fish, you ordinarily take them back and put them in a live box, is that correct?

A. That is right.

Q. Is it possible when you are handling the fish or you have them in the boat that they come in contact with gasoline and oil from your motor?

A. Well, it is not impossible, although with your new type motor where you carry your gasoline in a separate tank and you are not filling and spilling, it would be very rare if you ever had any gasoline in your boat.

Q. Have you experienced any difficulty with fish after you have cleaned them or before that have come in contact with the fuel around your motor or around your fish box?

A. I have.

Q. And isn't that about the quickest way to make the fish unpleasant to eat?

A. Well, it sure would make him unpleasant, that is right.

Q. And that has happened?

A. Yes, it has happened. But I tell you, as far as I am concerned, if I do have an accident those fish gets throwed straight back into the river, because I know better than to think to dress those.

Q. Well, that is, of course, if you know that they have come in contact?

A. Well, you would know it now because when you go fishing with one of these new motors you take a tank of gas, which is six gallons, and you will take your extra tank, which is six gallons, and there is a hose on that, then there is no pouring gas when I go fishing. I just take and snap that on and there is no way of that leaking out and when that runs out I snap the other one on. That is one thing anybody that is going to commercial fish will sure learn to do, is to quit spilling gasoline, because he will sure get in trouble.

Q. Have you ever had any trouble with wrapping your dressed fish or your cleaned fish in newspapers, and so forth?

A. I always keep wax paper.

Q. And should you wrap them in newspapers, of course that imparts the taste of the print?

A. Well, I imagine it could. I always buy this regular butcher paper by the roll, so I have got it, when I wrap my fish I have got it.

Q. Now, this one rejection that you had in the last two years, was that because the fellow knew where you caught the fish or what?

A. I don't believe so. I don't believe, he would have no way of knowing.

Q. It tasted bad?

A. That is what he said.

Q. You can't say here today what caused that, can you? In other words--

A. No.

Q. All right. How many commercial fishermen are there that fish in this vicinity that you know of?

A. Well, that is a diffucult question. There is a lot of men holds commercial licenses.

Q. All right. About how many?

A. Well, I had a list of the names this spring when they war trying to change the law and we was all doing some fighting to get it changed. There were three hundred and I believe sixty-two, that is the way I remember, anyhow it was well over three hundred and fifty, in the State of Nebraska. Omaha has the biggest number. At Winnebago I had a list of five. At Homer I didn't have any. At Dakota City I had around a dozen, maybe short of that one or two. And in South Sioux City around 20.

Q. A dozen at Dakota City?

A. Yes.

Q. Five at Winnebago?

A. Yes

Q. And how many in South Sioux City?

A. Around 20, the way I remember it.

Q. That held commercial fishing licenses?

A. That is right.

Q. In the 12 years that you have been in this area has the number of commercial fishermen increased or decreased?

A. They have increased.

Q. There are more today than there were 12 years ago that are doing some commercial fishing, is that correct?

A. That is right. But, now, if I may say it, holding a commercial license on the river doesn't mean that, in most cases, they are even attempting to sell any fish. It is a sport with a lot of them. They go out and catch the fish and, well, I know several parties that will turn them probably all loose, but pick out three or four that they want to eat. It is just a sport with them rather than a business.

Q. I understand, Wayne. In fact, I doubt, wouldn't you, that any of these men are supported solely from what they make selling fish?

A. Well, there is one that is.

Q. Who, Jim Satterwhite?

A. That is right.

Q. Where does Jim Satterwhite live?

A. Dakota City.

Q. And how far south on the river from, say, the Floyd does he live, if you know?

A. I suppose that would be in the vicinity of four miles, river miles.

Q. You speak of the iron bridge. You mean the railroad bridge?

A. That is right.

Q. Across the Missouri, which, pointing to Government's Exhibit No. 12, is in the lower right-hand corner (indicating)?

A. Yes.

Q. In fact, it is a few, perhaps a hundred yards down river from the mouth of the Floyd. Now, going on south on the river, Mr. Ross, you pass the Floyd Monument on the Iowa side, on the Nebraska side is South Sioux City which kind of joins into Dakota City?

A. Well, yes. There is quite a little strip in there, though, that there is no buildings.

Q. So it would be several miles south of the mouth of the Floyd where--

A. By Floyd--I don't know, maybe four miles would be further, but it is quite a little river miles down there. It is quite a little run down there. I don't know, I should know, those dikes are marked by river miles, but I have forgot.

Q. Well, is it a little bit north of the air base?

A. Yes, that is right.

MR. DAVIS: Just a second, if you please. I might explain to the Board that I do not intend to be repetitious, but I think that with this gentleman, as in the case of many of the other witnesses, we will eventually save much time because I will simply not have to call those witnesses. In fact, I can see yesterday where we saved a day's time. If I am repetitious, I would appreciate you gentlemen telling me. But that is the purpose for this.

CHAIRMAN WILSON: Nothing was said intentionally for the record on that subject. There was a little colloquy here between Mr. Poole and myself, but it wasn't intended for the record and if the reporter did get any of it, it may be understood that it is stricken from the record. And unless someone raises the subject, why, it isn't material.

Q. (By Mr. Davis.) Mr. Ross, Mr. Satterwhite, then, lives on the Nebraska side of of the Missouri?

A. That is right.

Q. About four miles south of the Floyd and has a fishing shack there from which he conducts his operation?

A. That is right.

MR. EDELMAN: Mr. Chairman, the Government would like to interpose an objection about this entire line of testimony about Mr. Satterwhite who is not on the stand and I just don't know how this information if elicited from this witness can in any way be competent, material or relevant.

CHAIRMAN WILSON: Oh, I think we will receive it subject to the objection.

Q. (By Mr. Davis.) Does he conduct all of his commercial operations which you say are full time south of the combination bridge?

MR. EDELMAN: Mr. Chairman, the Government again interposes an objection. No foundation has been laid for this question. The witness is not an expert.I don't know how he could be expected to be familiar and testify under oath with respect to all of Mr. Satterwhite's operations.

CHAIRMAN WILSON: He may answer if he knows from his own observation. I am assuming that is what he is being asked about.

A. I have saw him go as far north as where my camp is and put in and come down fishing.

Q. (By Mr. Davis.) Would you know whether he does the majority of his fishing south?

A. I would say the majority, yes.

Q. And how many years has he been there, if you know?

A. I don't know how many years he has been right at Dakota City. He has fished ever since I knew him, but he has changed locations a lot of times.

Q. Would you say the last 30 or 40 years?

A. Not at Dakota City, but he has fished that long.

Q. Here in the Sioux City area?

A. From Ponca and Jackson and Homer, back and forth on the river. He has made his home on the river. He even fished at Tekamah at one time on the river.

MR. DAVIS: I have no more questions, Mr. Chairman.

MR. WILSON: Any further questions on redirect?

MR. DETMAR: Yes.

CHAIRMAN WILSON: Go ahead.

REDIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Ross, how far south of Sioux City does Mr. Satterwhite fish?

A. Well, he fishes clear down as far as Winnebago. Fact of the case, he told me not very many days ago that he had him a trailer built so he could haul back from down around Winnebago and even as far south as Macy, he was going to try to get a little further south and get in a little cleaner water.

Q. To get in a little cleaner water, you said?

A. That is what he told me.

Q. Do you know if Mr. Satterwhite planned to be here today?

A. I talked to him yesterday morning and he couldn't come. I talked to him again yesterday evening. I think possibly if I would have had time to have went down there he would have come this morning, but I got balled up and it was about 8:25 when I left home, and I had told Mr. Hopkins I would be here at 8:30, so I didn't want to take time to go after him.

SECRETARY AYERS: Pardon me. Mr. Chairman, I am advised by one of the witnesses, Mr. Hartung, that the Government attorneys and the attorneys for Sioux City and you as Chairman have agreed to release to be returned to Dr. Ryckman Government's Exhibits 18 and 19.

CHAIRMAN WILSON: That is correct. A notation was made of that for the record last night. I think you had left at the time, Mr. Secretary, but it was agreed by counsel for the Government and the city that those exhibits might be returned to Dr. Ryckman and it was so ordered.

SECRETARY AYERS: O.K.

MR. EDELMAN: Mr. Chairman, may I ask that the record also show that Dr. Ryckman has been instructed and has agreed to retain these samples in the containers to be available for use in further proceedings if necessary.

CHAIRMAN WILSON: That may be understood.

MR. SAMSON: I think for the purpose of the record, is that agreeable with you, Mr. Davis?

MR. DAVIS: I don't want to be repetitious, but it is. I said so last night.

CHAIRMAN WILSON: That was agreed to by counsel for both parties last night.

MR. DETMAR: Mr. Chairman, the Government has no more questions of this witness.

CHAIRMAN WILSON: Have the members of the Board any questions?

MR. SAMSON: I have a question or two, Mr. Ross.

Q. (By Mr. Samson.) Would you be able to tell us, Mr. Ross, as to, oh, conditions on the river in the neighborhood of Sioux City now as compared to, oh, five years ago or ten years ago, whether they are the same or the pollution is worse or pollution is not as bad?

A. Well, I would say that the pollution might be worse, for this reason, that five years ago it was not unusual at this time of the year, especially, and from now on through until the latter part of the summer, to have a river from--well, we never saw a river under six foot and we didn't think a 10 or 11 foot river was a high river at that time. And now we have got around--I haven't looked the last few days, but it will be around a two minus and we won't run--when they raise it they will probably put it up to a four or five foot river and we are probably only running half as much water down the river as we used to. And naturally with the same amount of sewage and other stuff dumped into the river, there would be a heavier pollution. And we used to get those quick raises that might jump up three or four feet for a day or a day and a night or two days and go away, and all of your stuff was washed away at that time and now we do not get that.

Q. Now, how does the question of smell and odor fit into this picture? Is that condition somewhat similar to the pollution condition itself?

A. Well, yes. Now, last summer I noticed more smell than I ever did and that was, in my own mind, I am no expert, the reason for that was your piling that was drove down around here and it left your water behind it lay there dead without any current through it so your smell and your garbage and stuff didn't get away like it would have if it was getting direct into the current. I think you will notice that if you take a boat ride today, that down along there, oh, in your packing house district, that they have drove a row of piling back away from the bank a ways, and I don't know if the river, as low as it is now, whether there will be water behind that or not, but on a four or five foot river which you will have in the summer time there will be water behind that that has not much of a change to get away because it is rocked up above it, there is no current in there, it just has to seep away.

Q. Now, another question, there has been some evidence here in connection with the air base south of town. Are we to understand from your testimony, Mr. Ross, that that drains into a sealed pocket out there?

A. It would be practically that way now, yes.

Q. And that is shut off from the river, is that right?

A. Shut off with piling and rock. Now, that is--where they straightened that river down there and where they are cutting the new channel, they started up river from where they are going to cut this new channel, oh, quite a ways, a mile or better, and they run a dike kind of in a half moon shape and rocked it, put two or three what we call brace dikes back to the main bank and rocked those. And this air base sewer was put in when the river was running, oh, a good half a mile, to be conservative, maybe a mile, further east than it is today. That is when this sewer was put in to the river. Now your channel is way over on this side and they have got that sealed off.

Q. By that you mean it is further west?

A. That is right.

MR. SAMSON: That is all I have. Thank you, Mr. Ross.

CHAIRMAN WILSON: Other questions?

Q. (By Chairman Wilson.) Mr. Ross, I suppose in your experience as a commercial fishermen you have observed the habits of different species of fish?

A. Yes.

Q. What are the habits of the different species that you have mentioned as to moving up and down river? Do they stay pretty much in the same place or do they move up and down river?

A. Well, that is rather hard to answer. If we find a place in the river where there is fish today and the river doesn't change, why, there is usually fish there when you go back. Fact of the case, we refer to them places as a fishing place in the river, there just naturally seems to be fish there. You go some place else and there just don't seem to be fish there. At spawning time, why, your fish will work out into the shallow waters and other times they don't. I don't know whether you would say how far fish travel, I wouldn't have no way of knowing that, but we do know that we have places that we just sail right on by that we don't fish because we have tried it and tried it and tried it and there just don't seem to be fish there and there is other plces that there just seems to be fish there and that is where we fish.

CHAIRMAN WILSON. Any other questions?

That is all.

MR. DAVIS. I have just one more question for Mr. Ross, If I may.

RECROSS-EXAMINATION

BY MR. DAVIS:

Q. In connection with Mr. Samson's question to you, Mr. Ross, concerning the air base sewage, does it reach the river eventually regardless of flow or not, I mean the fluids, and so forth, in the sewage? I am not speaking--

A. Well, the fluid would surely reach the river eventually. It would be--it would have to go through, let's say, right at the present time, three strings of rock. Now, you know your rock is from the size of that (indicating) on up to big (indicating), you might almost call them boulders, that is piled along those dikes if the current runs against them when first put in there, readily runs through, you will see quite a lot of water run through, but the more it sets there the more sediment that gets in it and it seals off, in time they practically seal off. Now, these dikes has been put in in the last two years so they are not permanently sealed off yet, but it is not running direct into the river. It would have what I would say quite a settling base before it got to the river. You folks are going down that way. I think you will verify that when you get down there.

Q. Incidentally, with reference to that, do you have any idea as to what the river stage is today?

A. I don't believe--I think it will be around two minus.

Q. Two minus?

A. I believe.

Q. That is today?

A. I believe so. I haven't looked in the last day or two. They are going to start raising the river, I believe, in a few days, I understand.

MR. Davis: That is all the questions I have.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Ross.

(Witness excused.)

MR. DAVIS: Mr. Chairman, at this time I would like to introduce to you and the members of the Board and counsel Mr. John O'Brien, who is with me today, who is an Assistant City Attorney and will be here in place of Mr. Pendleton throughout the day and perhapd the rest of the hearing.

CHAIRMAN WILSON: His appearance will be noted.

MR. EDELMAN: Mr. Kittrell, please.

F. W. KITTRELL

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN.

Q. Mr. Kittrell, you were sworn yesterday and I remind you that the testimony you are about to give today is still subject to that oath. Will you give your name and identify yourself for the reporter, please?

A. My name is F. W. Kittrell, K-i-t-t-r-e-l-l. I am in charge of Stream Sanitation Studies--should I give my home address?

CHAIRMAN WILSON: Mr. Kittrell, you just remember that you are talking for the farthest people in the room, please.

A. I resolved yesterday to do that and I will try to remember it. Do you need my home address? I have noticed a number have given their home address.

Q. (By Mr. Edelman.) Mr. Kittrell, you just go right ahead and give it.

A. All right. In Charge Stream Sanitation Studies, Robert A. Taft Sanitary Engineering Center, U.S. Public Health Service, 4676 Columbia Parkway, Cincinnati, Ohio.

Q. Will you give your exact position with the Public Health Service, Mr. Kittrell?

A. I am in charge of Stream Sanitation Studies.

Q. How long have you held that position?

A. About three years.

Q. Now, just what duties do you discharge as chief of that section?

A. My principal responsibilities are the planning and supervision and direction of field studies to determine water quality and the effects of pollution on streams throughout the country in cooperation with states and other federal agencies, and the preparation of reports which give the results of these studies, and draw conclusions regarding the effects of pollution and in some cases the needed features or the needed facilities to correct adverse pollution.

Q. Can you tell us in a general way what these studies entail?

A. Well, they involve survey of sources of waste or assembly of information on sources of waste, they involve visits to the field to select sampling stations that will provide the information we need, they involve planning the details of sample clerks and analysis, and the conduct of the survey based on such planning, and ultimately the analysis and interpretation of the accumulated data and the preparation of reports.

Q. Now, you said that you have held this position for the past three years?

A. That is correct.

Q. Prior to this position what did you--what was the nature of your work?

A. For two years before I came with the Public Health Service I was employed by the Atomic Energy Commission at Oak Ridge. A portion of my duties there was the dissemination of information on the safe disposal of radio active wastes into sewers and into streams. Before that I was with the Tennessee Valley Authority for nine years in charge of stream pollution studies for the Tennessee Valley Authority throughout the Tennessee River Basin. The studies there were very similar to those which I have just described, but included examination of the effects of reservoirs on water quality as well as pollution on water quality. Previous to that I spent 11 years with the Tennessee Department of Public Health engaged in very similar activities . I had more general experience during those days in all around sanitary engineering involving water supply and sewage disposal, but a great portion of my work there was also investigation of sources of wastes and the examination of streams.

Q. In other words, you have had approximately what, 25 years of experience in the field of water sanitation?

A. About that, yes.

Q. Can you tell us about your formal education in this field, Mr. Kittrell?

A. I hold a Bachelor of Science degree in Chemistry and a Master of Science degree in Sanitary Engineering from Harvard University.

Q. Now, in connection with your duties with the Public Health Service, have you had occasion to study the problem of the pollution of the Missouri River in the reach between Gavins Point Dam, South Dakota, and Omaha, Nebraska?

A. Yes, I have.

Q. And in making that study did you familiarize yourself with the published reports concerning this matter?

A. Yes.

Q. These reports were official records of the Public Health Service?

A. Those and others, yes.

Q. And others. Did you also direct and participate in a field study of the Missouri River between Gavins Point Dam and Omaha, Nebraska?

A. Yes.

Q. Can you tell us when that field study was made?

A. That study was conducted starting on August 20th and continuing through August 26th in the sections of river to which you refer. Additional work was continued at Omaha, at the Omaha intake, through September 11, 1958.

Q. Now, on the basis of your knowledge of the situation gained in the manner you have described, can you tell the Board the nature and extent of the pollution load which enters the Missouri River in this stretch?

A. Yes.

Q. And are you also able to identify the municipalities which contribute to this load?

A. Yes.

Q. You have determined and evaluated this in terms of statistics, have you not?

A. Yes.

Q. Have you prepared a chart on which these statistics are presented in a visual form?

A. I have.

Q. Do you have a chart showing the statistics related to the bacterial contamination?

A. Yes.

Q. May I have it?

MR. EDELMAN: I ask that this be marked Government Exhibit No. 21

for identification, a chart entitled "Sources of Bacterial Contamination".

(Government's Exhibit No. 21
marked for identification.)

Q. (By Mr. Edelman.) Mr. Kittrell, was this chart prepared at your direction?

A. Yes.

Q. And it is based on data which you have in your possession?

A. That is correct.

MR. EDELMAN: I now offer this exhibit in evidence as Government Exhibit No. 21.

MR. DAVIS: Objected to as incompetent, irrelevant and immaterial. I don't believe any proper foundation has been laid at this time.

CHAIRMAN WILSON: Objection overruled.

(Government's Exhibit No. 21
received in evidence.)

MR. EDELMAN: May I ask that that chart be placed on the easel?

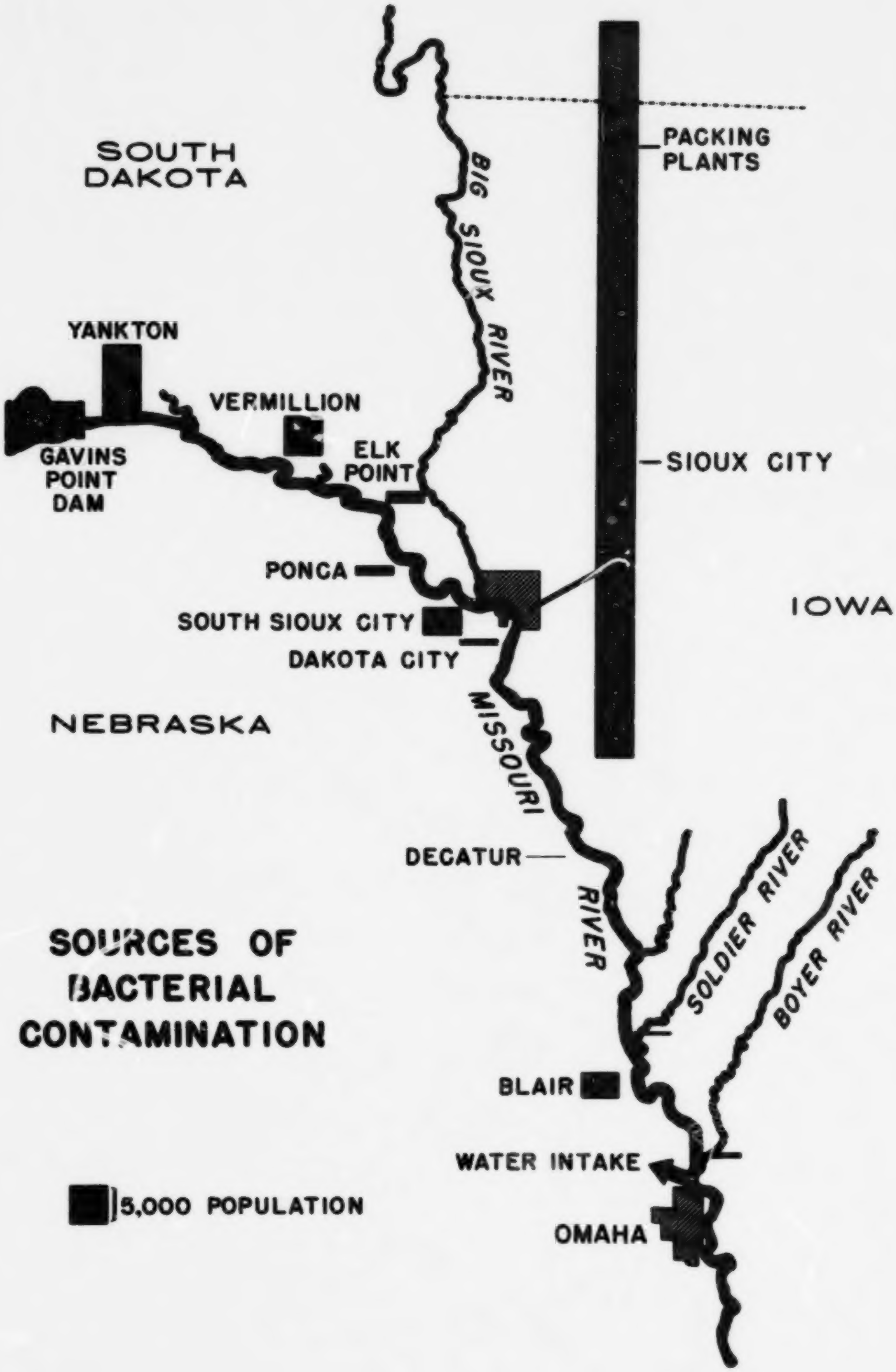
CHAIRMAN WILSON: Just note on the record there that, as in the case of the other exhibits, it is received subject to the objection.

Q. (By Mr. Edelman.) Now, Mr. Kittrell, will you describe the sources of pollution in this stretch of the river, and you may use the chart to assist you, with respect to the bacterial contaimination contributed?

A. Yes.

Q. Would you, may I ask first that you explain the scale of this chart, please?

A. Yes, I was going to explain first that this heavy line (indicating), which I trust all of you can see over there, does represent the Missouri River from Gavins Point Dam (indicating), past Sioux City (indicating), to Omaha (indicating). It includes the names of the towns on which I have sewered population information. It also contains bars which are drawn in proportion to sewered population. In the lower right-hand corner of the chart (indicating) is a small bar, the height of which represents 5,000 sewered population. The rest of the bars at the cities where they occur represent by proportion to height the sewered population of these communities. I would like to point out that I do not have the Sioux City Air Force Base included on this chart. I do not have population figures for the Air Force Base, which I understand are restricted, and so I have not been able to include them. I have, however, made an investigation of the point at which the sewer discharges. I have also seen the river where the sewage enters. On the basis of that observation I concluded that there was sufficient detention time in the channel which contains back water from the river into which this sewage discharges and detention time in the revetment area, which was referred to earlier this morning, to assure that relatively little bacterial contamination will reach the river from the air base. So I do not think it is too important to the purpose of establishing the water quality in the river and the sources of contamination that it was-- I don't think it is too important that it was necessary to omit population figures. However, I do not want to ignore the fact that that sewer is there.



SOURCES OF BACTERIAL CONTAMINATION

SOUTH DAKOTA
PACKING PLANTS
BIG SIOUX RIVER
YANKTON
VERMILLION
GAVINS POINT DAM
ELK POINT
SIOUX CITY
PONCA
IOWA
SOUTH SIOUX CITY
DAKOTA CITY
NEBRASKA
MISSOURI RIVER
DECATUR
SOLDIER RIVER
BOYER RIVER
BLAIR
WATER INTAKE
OMAHA
5,000 POPULATION

Q. Now that you have mentioned that, Mr. Kittrell, May I ask, are you familiar with a lagoon type of sewage treatment?

A. Yes.

Q. Would you characterize the situation at this Air Force Base that was described by Mr. Ross earlier this morning and as you have described it as being very similar to a lagoon?

A. It is similar. It is not, of course, the same. I mean it is quite similar in that it affords considerable detention time for the sewage and an opportunity for the bacteria to die off before the sewage in which they are contained reaches the road.

Q. Is the lagoon an acceptable method of sewage treatment?

A. It is.

Q. In other words, this situation is a form of sewage treatment, acceptable?

A. It might be so termed, yes.

Q. Will you continue.

A. I explained this before I started with population figures so that it would be understood that these are omitted from the figures that I am about to give. Starting up at Yankton there is a sewered population, including the state hospital there, of about 9,300 persons, which is 7.8 percent of the total discharged through this reach of the river.

MR. DAVIS: I beg your pardon, Mr. Kittrell.

May I hear from the reporter the answer? I didn't hear the answer.

(Answer read.)

MR. DAVIS: Thank you.

A. The next downstream source of pollution is Vermillion, South Dakota, which discharges sewage from a population of 5,000 or 4.2 percent of the total, to Vermillion River about five miles from the Missouri River. Farther down the stream is Elk Point, South Dakota, discharging untreated sewage--all of these so far have been untreated sewage--to the river from a sewered population of 1,350 or 1.1 percent of the total. Across the river on the Nebraska side is Ponca, discharging sewage,untreated sewage, from a population of 1,020, or about .9 percent of the total At Sioux City the raw sewage from a population of 70,000 and packing plant wastes containing coliform organisms equivalent to the sewage from about 25,000 persons discharged to the Missouri and to the Floyd River near its mouth.

MR. DAVIS: May we pause a minute while we catch up on our notes? I have no objection to the form of testimony, but I occasionally will have to catch up.

Mr. EDELMAN: Is this an objection? I am not sure I understand.

MR. DAVIS: No, sir. I just wanted to get caught up. Go right ahead.

Q. (By Mr. Edelman.) Will you resume your testimony? As I recall, you were testifying about the discharge from Sioux City.

A. That is correct.

Q. Will you start over again just for clarity?

A. Start from the beginning?

Q. No, just at Sioux City.

A. Start at Sioux City. At Sioux City raw sewage from a sewered population of 70,000 and meat packing plant wastes containing coliform organisms estimated to be equivalent to those contained in the raw sewage from a population of about 25,000 are discharged to the Missouri River along the Sioux City waterfront and from the Floyd River a short distance above its mouth. These two sources combined give a total of about 95,000, I might call it bacterial population equivalent. I hate to do this because it is not too common a term. But the total coliform organisms from Sioux City are estimated to be equivalent to those from a sewered population of 95,000. I might explain that the coliform organisms of the packing plant wastes were estimated from samples taken in the Floyd River above and below the packing plants discharging wastes to Floyd River. These two sources combined give a total of 79.7 percent of the total coliform organisms.

Q. (By Mr. Samson.) Can we have that percent again?

A. 79.7 percent, or I will settle for 80 percent very gladly, of the total discharged to this reach of the river. Across the river from Sioux City, South Sioux City discharges sewage into the river, untreated sewage, from a population of 3,500, which represents about 3 percent of the total discharged to this reach of the river. A short distance below South Sioux City, Dakota City discharges raw sewage from a population of 600. Approximately midway down the river between Sioux City and Omaha, Decatur, Nebraska, discharges sewage from, treated sewage in this case, from a sewered population of around 700, and I estimate that the treatment probably reduces the actual coliform organism discharge from the treatment plant to that equivalent to about a hundred population, or about one-tenth percent of the total discharged to this reach of the river. And finally at Blair, Nebraska, untreated sewage from a population of about 3,300 or 2.8 percent of the total, is discharged to the Missouri River.

Q. (By Chairman Wilson.) What was that population? The population of Blair.

A. It is 3,300. I have 3,290, but I rounded it off to 3,300, or 2.8 percent of the total.

Q. (By Mr. Edelman.) In the course of this study, Mr. Kittrell, have you computed the organic pollution which is put in the Missouri River by these municipalities?

A. I have.

Q. You have compiled statistics on that?

A. That is correct.

Q. Have you prepared a chart on that subject?

A. I have.

Q. Do you have it there?

A. Yes.

MR. EDELMAN: I ask that this be marked Government Exhibit No. 22 for identification, a chart entitled "Sources of Organic Pollution".

(Government's Exhibit No. 22
marked for identification.)

A. Might I add at this time that I neglected to point out when I was referring to Sioux City that in general I have shown the equivalent bacterial contamination by a red bar, but at Sioux City we incorporated in the same bar the estimated contribution of coliform organisms from the packing plant as the brown portion of the same bar.

Q. (By Mr. Edelman.) Mr. Kittrell, I ask you whether the Government Exhibit No. 21 that you have been using also shows a number of tributaries entering the Missouri River?

A. You say a number or the number? I mean do you mean all tributaries or--

Q. It shows the substantial tributaries, doesn't it?

A. It shows some of the tributaries, yes.

Q. Some of the tributaries. In connection with this study did you also evaluate the bacterial contamination contributed by the tributaries?

A. Yes, we did. We sampled all of the significant tributaries as near their mouths as we could.

MR. EDELMAN: For the information of the Board, we are reserving this for a later portion of Mr. Kittrell's testimony so as not to confuse the picture. We just want to point out it will be available.

Q. (By Mr. Edelman.) I direct your attention to Government Exhibit No. 22 for identification and ask you whether that was prepared at your direction?

A. Yes.

Q. Does it accurately reflect the statistics you have compiled on the subject of sources of organic pollution?

A. Yes.

Q. And it is based on those statistics, is it not?

A. That is correct.

MR. EDELMAN: I offer this as Government Exhibit No. 22 in evidence.

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial, no proper foundation, at this time at least, has been laid.

CHAIRMAN WILSON: Objection overruled. Received subject to the objection.

(Government's Exhibit No. 22
received in evidence.)

Q. (By Mr. Edelman.) Now, Mr. Kittrell, will you, from the studies you have made and using this chart to illustrate, tell the Board the extent of organic pollution contributed to the stream by the municipalities on the Missouri River in this area?

A. Yes. This chart is in effect a replica of the first chart except that there is a difference in the bars and what they signify. In this case, the bars represent organic pollution in terms of oxygen demand, and are expressed in terms of the usual population equivalent based on oxygen demand, which is commonly used in designating wastes, both sewage and industrial wastes. In the lower corner of the chart (indicating) is a column which represents, in this case, 25,000 sewered population or 25,000 population equivalent. Starting again at Yankton we have a population equivalent of the sewage and industrial wastes from Yankton of 16,400, or 3.1 percent of the total. At Vermillion, 6,000 population equivalent, or 1.1 percent of the total is discharged to the Vermillion River. At Elk Point, 2,500 population equivalent or .5 of 1 percent is discharged to the river. At Ponca one thousand and twenty or two-tenths of one percent of the total population equivalent is discharged. And I neglected to say this with respect to the first chart, I should have done it, I will make that insertion now, that sewage from Ponca is discharged to Aowa Creek about eight miles above its mouth. I neglected to bring this out originally. At Sioux City the population equivalent of the domestic sewage is 101,000 and of the packing plant wastes it is 388,000, for a total of 489,000, or 92.8 percent of the total. At Sioux City, the population equivalent discharged to the river is 3,500, or .7 percent of the total. At Dakota City, the population equivalent is one thousand or two-tenths percent of the total. And at Blair the population equivalent is 7,120 or 1.4 percent of the total.

Q. (By Mr. Samson.) Doctor, pardon me for interrupting, but I didn't get the percent on Sioux City and South Sioux City. Would you be so kind as to give those?

A. Sioux City, including the packing plant waste, the percentage is 92.8 percent. South Sioux City, 3,500, or .7 percent.

MR. SAMSON: Thank you.

Q. (By Mr. Edelman.) Mr. Kittrell, referring to Government Exhibit No. 22, the bar for Sioux City is in two colors?

A. That is correct.

Q. What does the red portion of that bar represent?

A. The red portion represents the population equivalent due to domestic sewage and the brown portion represents the population equivalent due to meat packing plant wastes.

Q. And that bar represents a total population of approximately a half a million, as I understood?

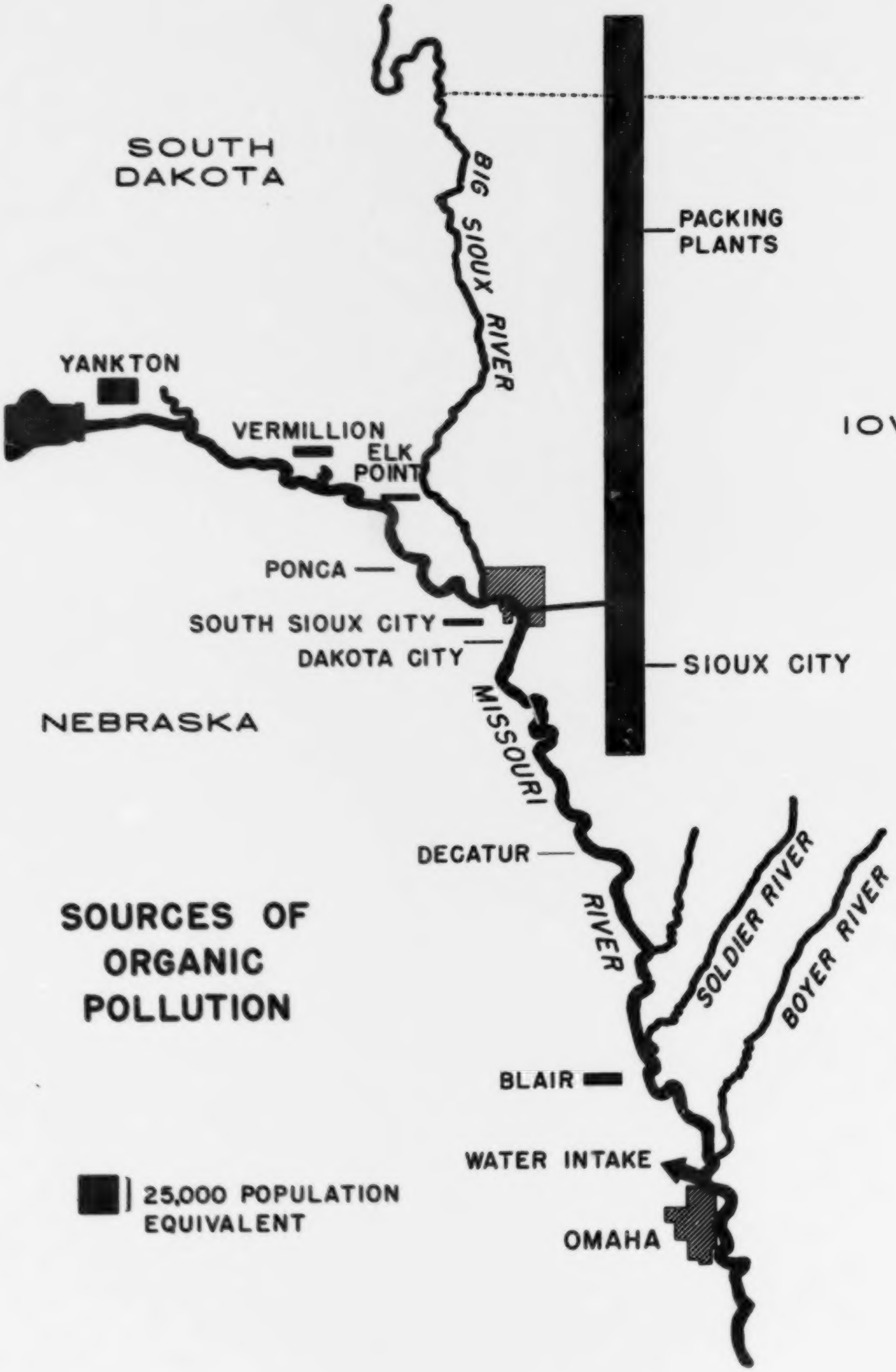
A. Almost a half million persons, yes.

Q. (By Mr. Poole.) You mentioned two municipalities, Mr. Kittrell, that are off the river?

A. Yes.

Q. I believe they are Vermillion and Ponca, if my notes are right?

256-A



SOUTH DAKOTA
BIG SIOUX RIVER
PACKING PLANTS
YANKTON
VERMILLION
ELK POINT
IOWA
PONCA
SOUTH SIOUX CITY
DAKOTA CITY
SIOUX CITY
NEBRASKA
MISSOURI RIVER
DECATUR
SOLDIER RIVER
BOYER RIVER
BLAIR
WATER INTAKE
OMAHA

SOURCES OF ORGANIC POLLUTION

■ 25,000 POPULATION EQUIVALENT

A. That is correct.

Q. In both charts do the figures refer to the situation as it leaves the municipality or--

A. That is correct, at the point of discharge, that is correct.

MR. POOLE: Thank you.

MR. DAVIS: I am sorry, Doctor. You say at the point of discharge at the municipality or into the river?

A. At the municipality into the river to which the waste discharges directly.

Mr. DAVIS: Into the tributary?

A. Yes.

MR. DAVIS: Thank you.

Q. (By Mr. Edelman.) Did you have occasion to compute the total sewage discharged at Sioux City in connection with this study?

MR. DAIVS: I beg your pardon. I didn't get your question.

MR. EDELMAN: I am sorry. I will repeat the question.

Q. (By Mr. Edelman.) Mr. Kittrell, as part of this study do you have the figures on the total sewage discharged at Sioux City?

A. Yes, I have certain figures which indicate the characteristics of the sewage discharged. The volume of flow is about seven and three-quarter million gallons a day for the domestic sewage, for the packing plant wastes about seven and one-half million gallons per day, for a total of about fifteen and one-quarter million gallons per day.

MR. DAVIS: Excuse me, Dr. Kittrell, I am afraid the only way I can reach this is through an objection.

Object to this, Mr. Chairman, as no date is fixed. Perhaps I didn't hear it.

CHAIRMAN WILSON: Can you fix the date, Counsel?

MR. EDELMAN: We are going to try to, Mr. Chairman.

Q. (By Mr. Edelman.) Can you tell us where those figures were derived from?

A. They are taken from the report of the Consulting Engineer for Sioux City.

Q. Which has been introduced in evidence as Government Exhibit No. 5, as I recall?

A. Which has been introduced in evidence as an exhibit.

MR. EDELMAN: What is the date of that engineer's report, Mr. Secretary? I think it is on the first page. Isn't it 1957, December?

SECRETARY AYERS: Wait a minute. I am looking at Government's Exhibit No. 8.

MR. EDELMAN: 8, that is what I meant.

SECRETARY AYERS: Howard Green. December 30, 1957.

MR. EDELMAN: Does that fix it sufficiently, Mr. Davis, or do you want more particularity?

MR. DAVIS: No, that is fine. That is just what I wanted.

Q. (By Mr. Edelman.) Will you resume your testimony, Mr. Kittrell? As I recall, you have just testified that the total volume of sewage was fifteen million gallons a day?

A. About fifteen and a quarter million, yes.

Q. Will you go on.

A. The biochemical oxygen demand of the domestic sewage was reported as 17,059 pounds per day.

(Off the record.)

A. Repeating, the domestic sewage was reported to be 17,059 pounds per day and the biochemical oxygen demand of the packing plant wastes was reported as 65,063 pounds per day, for a total of 82,122 pounds per day. The suspended solids in the domestic sewage were 11,619 pounds, the suspended solids in the packing plant wastes 39,863 pounds, for a total of 5,--51,482 pounds per day, or only a little less than 26 tons per day of suspended solids discharged from Sioux City. No grease was reported in the domestic sewage, but from the packing plants it was reported that 45,746 pounds of grease per day was discharged to the river, which is only a little less than 23 tons per day.

Q. (By Mr. Poole.) I didn't get that, 45,7--

A. Forty-six thousand pounds per day of grease.

Q. (By Mr. Edelman.) Mr. Kittrell, may I ask you, is the BOD or the oxygen demand, as you have used it in testifying to this waste, a measure of the organic solids that is contained in the water that is being measured as well as dissolved organic matter?

Q. It is a measure of the oxygen that will be used by decomposing organic matter, both suspended and dissolved, in the wastes.

Q. In other words, it is a measure of the amount of organic solids that will require oxygen in decomposition?

A. That is correct.

Q. Now, you testified earlier that a study was made of the Missouri River in this area in a period beginning Ausust 20, 1958?

A. That is correct.

Q. During the course of this study did you have occasion to visit the waterfront of Sioux City?

A. Yes, I did.

Q. What part--can you identify the time, as close as you can?

A. I do not have the exact date, but it was I believe either August 28 or 29, 1958.

Q. I call your attention to this aerial photo, which is Government Exhibit No. 12, and ask you whether you can indicate on that exhibit the points of the waterfront that you visited? Can you do so?

A. Well, I traveled by boat along most of the waterfront. In fact, I believe we entered the river at or entered the Big Sioux River, we took the boat there, and traveled down the entire waterfront. However, I did not make any attempt to observe every sewer coming into the main river. I did observe in the vicinity of Perry Creek (indicating), in the vicinity of Virginia Street (indicating), in the Vicinity of Court Street (indicating), I observed in the vicinity of the Floyd River (indicating), includes a short distance up into the mouth of the river, and I also observed the water front extending for a distance of possibly a mile above the mouth of the Floyd River (indicating).

Q. Will you please tell us what you observed at that time?

A. Well, in the vicinities of the three sewers that I mentioned I saw condoms, I saw pieces of solid feces floating in the water, I saw bits of toilet paper. The water around the mouth of the sewers appeared typically gray as usually occurs when sewage enters a stream. Near the vicinity of Perry Creek, in particular, gas bubbles from decomposing material on the bottom of the river were rising to the surface and odor was detectable for some distance from the mouth of--from the area around the mouth of Perry Creek (indicating). In the mouth of Floyd River (indicating), this was during the navigation season, the river was high and there was considerable back water in the Floyd River, and larger areas of that back water were completely covered by grease and paunch manure, where the water could be seen there were patches that were red with blood, the water was dull gray and lifeless in apprarance. Here also gas bubbles were rising from decomposing material on the bottom and odor typical of packing plant wastes was noticeable for some distance from the mouth of the Floyd River. In the area that I spoke of which extends a mile above the mouth of the Floyd River (indicating), the Corps of Engineers has built revetments which extend parallel to the bank of the Missouri River a distance of, oh, some distances of maybe 50 to 100 feet out from the river and for about a mile along parallel to the bank of the river. Some sewers discharge in back of these revetments and have created in that area conditions that are quite similar to those observed in the mouth of Floyd Creek. I am not prepared to say that the scum was grease and paunch manure, but in general the appearances in back of these revetments was very similar to the appearances of the water in the Floyd Creek - Floyd River.

Q. Earlier in the testimony you were questioned about a field study that was conducted and appeared beginning August 20, 1958?

A. Yes.

Q. Can you tell us something about the organization of that field Study?

Q. Yes. I was responsible for that field study. I was responsible for the general planning of it, I was responsible for assignment of personnel on it, for general layout of the survey, of the proposed sampling stations, sampling methods, and determinations to be made. Under my direct supervision was one of our engineers from the Center, who has been with me for some time and has had experience not only with me but previous to working with me has had experience in field work of this sort. A chemist from the Center was assigned to this work who has many years of experience in both chemical and bacteriological methods of labroatory examination. In addition, in the field, establishing the field operations, we worked very closely with members of the staff of the Public Health Service Regional Office in Kansas City, men who have very good knowledge of the local situation and were very helpful in planning the local details of the study. All told there were a total of about 14 professional people, engineers, chemists, bacteriologists, biologists, involved in planning and conducting the study.

CHAIRMAN WILSON: We will take our morning recess now for 10 minutes.

(RECESS)

CHAIRMAN WILSON: The hearing is in order.

Q. (By Mr. Edelman.) Mr. Kittrell, in your last answer you referred to personnel from the Center. I assume you are referring to the Robert A. Taft Sanitary Engineering Center of the Public Health Service in Cincinnati, Ohio?

A. That is correct.

Q. What laboratory facilities were established for this study?

A. We used laboratory space and some laboratory facilities in the water treatment plant of the Omaha Metropolitan Utility District at Omaha. In addition we brought in some additional facilities that were needed for the large volume of work involved.

Q. Were procedures established for the conduct of the study?

A. Yes. Sampling stations that would show--that would provide the information we thought was needed on the contamination of the river were selected at strategic points. May I ask, would you like some detail at this time or would you prefer I bring this out later or does it make any difference?

Q. I suggest you answer my question as you understand it.

A. I am sorry. Sampling stations were collected at strategic points on the river from Yankton down to just above Omaha.

Q. Were--

A. It was determined that all field and laboratory procedures, collection of samples and all laboratory analyses, would adhere strictly to standard methods for the examination of water, sewage, and industrial wastes, which is the standard reference book for this type of work.

Q. Did these procedures apply to the preservation and transportation of the samples?

A. That is correct.

Q. Did they also apply to the analysis of the samples?

A. Yes.

Q. And all these procedures adhered strictly to those standards?

A. Very strictly, yes.

Q. Would you tell us what procedure was established for the collection of samples?

A. We established three points across the river at each station. These points were at approximately quarter point points of the river at each station.

Q. Did you establish sampling stations at the tributary streams to the Missouri River?

A. We also established sampling stations on 13 tributary steams between Yankton and Omaha. These stations were as close to the mouths of the streams as it was feasible or practical to establish them, where there were suitable access points.

Q. Did the procedures provide for the establishment of sampling times?

A. I gave instructions that the sampling times be varied as much as possible throughout the day in order to avoid sampling routinely so that either peak or low degrees of contamination would not be sampled all the time throughout the survey. In other words, I asked that the sampling be staggered to attempt to get reasonably representative samples throughout the daylight hours from all of the stations.

Q. Did the procedures provide for the point at which all tests, bacteriological tests, were to be conducted?

A. I am sorry, I did not quite get the question. Will you repeat it, please?

Q. As I understand it, Mr. Kittrell, the procedures you mentioned provide for presumptive tests, confirmed tests, for bacterial presence. Can you tell us through what tests your procedures provided the examination was to be carried on?

A. We used the multiple dilution tube method for the determination of the most probable numbers of coliform organisms, which is the method recommended in standard methods.

Q. In preparation for this hearing have you prepared a chart showing the location of your sampling stations?

A. Yes, I have.

Q. Do you have it there?

A. Yes.

MR. EDELMAN: I offer this chart, which carries the legend "Missouri River Yankton, South Dakota, to Omaha, Nebraska" as Government Exhibit 23 for identification.

(Government's Exhibit No. 23
marked for identification.)

MR. EDELMAN: Would you mind putting that on the easel?

Q. (By Mr. Edelman.) I call your attention to Government Exhibit No. 23 for identification and ask whether that was prepared at your direction?

A. Yes.

Q. Does that chart show the relative location of your sampling stations insofar as their position with respect to various maunicipalities on the river is concerned?

A. That is correct.

MR. EDELMAN: I offer that chart in evidence as Government Exhibit No. 23.

MR. DAVIS: No objection, Mr. Chairman.

CHAIRMAN WILSON: Received.

(Government's Exhibit No. 23 received in evidence.)

Q. (By Mr. Edelman.) Using Government Exhibit 23, Mr. Kittrell, will you please tell us where your sampling stations were located?

A. The farthest station upstream was located just above Yankton, South Dakota, which is river mile 840 according to the Corps of Engineers official mileage index, 840.4 actually. The next station on the main river was located just above Sioux City and the mouth of the Big Sioux River, the Big Sioux River entering the Missouri River at the upper edge or the western edge of Sioux City. This was at river mile 762.8. The first station below Sioux City was at river mile 755.7, which is 2.6 miles below the mouth of the Floyd River and below all known waste discharges from Sioux City. From there on down for a distance of about 30 miles we had additional sampling stations spaced at approximately 10 miles apart dwon to Decatur, Nebraska, which is at mile 716.9. The next downstream station was just above Blair, Nebraska, above the point at which the sewage from Blair enters the river. And the final station on the main stream was at the Mormon Bridge one-tenth of a mile above the Omaha water plant intake. This bridge is at mile 642.4. For a total distance involved of almost 200 miles on the main river. In addition we had stations near the mouths of 13 tributaries, one near the mouth of the James River, which enters below Yankton, one near the mouth of the Vermillion River below the point at which Vermillion sewage discharges, one on the Big Sioux above where sewage from Sioux City discharges, one on the Floyd above all sewage from Sioux City, and one right or practically at the mouth of the Floyd, a bridge about one-tenth of a mile above the Floyd. These two stations bracketed both packing plant wastes and domestic sewage from Sioux City which enter Floyd River. On the Nebraska side there was a sampling station on Omadi ditch (indicating), which, incidentally, also includes Omaha Creek, which is not shown on this map. Still on the Nebraska side there was a sampling station on Tekamah ditch (indicating). And across the river there was a sampling station near the mouth of Monona-Harrison drainage ditch (indicating), a sampling station near the mouth of the Little Sioux River (indicating), one near the mouth of the Soldier River (indicating), one on Allen Creek's ditch (indicating), one on the Boyer River (indicating), and one on Honey Creek (indicating), the locations of which I have indicated approximately on the map.

Q. Were samples collected on all of these stations during the course of the study?

A. Samples were collected daily, once daily, from all main river sampling stations during the period August 20 through 26.

Q. Were these samples analyzed in accordance with the procedure you have described?

A. That is correct, yes.

Q. What was done with the coliform values that were obtained from each of these samples?

A. I am not sure I quite understand the question.

Q. You established that you took three samples across the river?

A. Yes.

Q. Each of these samples was analyzed and gave an MPN count.

A. I see. The sample from each point, each of the three points at each station, was examined separately to yield three values for each station on a given sampling date. These values were averaged to give a single MPN value for the station on the day involved.

Q. How many samples were examined for these stations, can you tell us, roughly?

A. During the period of one week of sampling every day a total of twenty-one separate samples were collected at each main river station.

MR. DAVIS: I am sorry, my attention was diverted.

May I hear that answer, Mrs. Rankin?

(Answer read)

MR. DAVIS: One per day, Doctor, is that correct?

A. Well, we collected three per day at each station--

MR. DAVIS: Yes.

A. --across the river at about the same time, I mean as fast as they could be collected going across the river, and we did that for seven days at each station during the period August 20 through 26.

MR. EDELMAN: Mr. Chairman, for the record I would like to say that Mr. Kittrell's correct title is Mr. Kittrell. He does not have the title of Doctor.

Q. (By Mr. Edelman.) These values were computed, then, for each station on the main river? Let's put our attention to that.

A. That is correct.

Q. Did you prepare a chart showing the relation of these values at all these stations?

A. Yes.

Q. Do you have that chart there?

A. Yes.

MR. EDELMAN: I offer as Government Exhibit 23 for identification a chart entitled "Coliforn bacteria MPN per one hundred milliliters in thousands."

SECRETARY AYERS: This will be No. 24.

MR. EDELMAN: Oh, I am sorry.

I am sorry, the wrong title. I was reading the scale. The correct title of this chart is "Bacterial contamination Missouri River Sioux City to Omaha".

(Government's Exhibit No. 24 marked for identification.)

Q. (By Mr. Edelman.) Mr. Kittrell, was this chart prepared at your direction?

A. Yes.

Q. Does it reflect the relative values of the data you obtained from the sampling you have described?

A. Yes.

Q. Is it an accurate representation of that data?

A. Yes, I might add with the exception of the station at Omaha--above Yankton which is not included on this chart.

Mr. EDELMAN: I offer this as Government's Exhibit 24 in evidence.

MR. DAVIS: No objection other than that at this time I don't think proper foundation has been laid, but otherwise I have no objection.

CHAIRMAN WILSON: Received.

(Government's Exhibit No. 24 received in evidence.)

Q. (By Mr. Edelman.) Mr. Kittrell, will you please tell us the MPN values that were obtained for the stations on the Missouri River? And you may use Exhibit 24 to illustrate your findings.

A. As I said earlier, the station above Yankton is not shown on this chart. The average coliform organisms MPN for the week that we sampled were one hundred eleven per hundred milliliters above Yankton.

MR. DAVIS: Mr. Kittrell, I will appreciate your going slowly through this, as I want to write them down.

A. All right.

MR. DAVIS: A hundred ten at Yankton?

A. A hundred eleven.

MR. DAVIS: Per what?

A. One hundred milliliters. At the station just above Sioux City the average MPN was one thousand one hundred per hundred milliliters. The first station below Sioux City--I neglected to mention this also--is not shown here. The first station below Sioux City, the average MPN was fifty-eight thousand seven hundred per hundred milliliters. That would fall off of this chart with the

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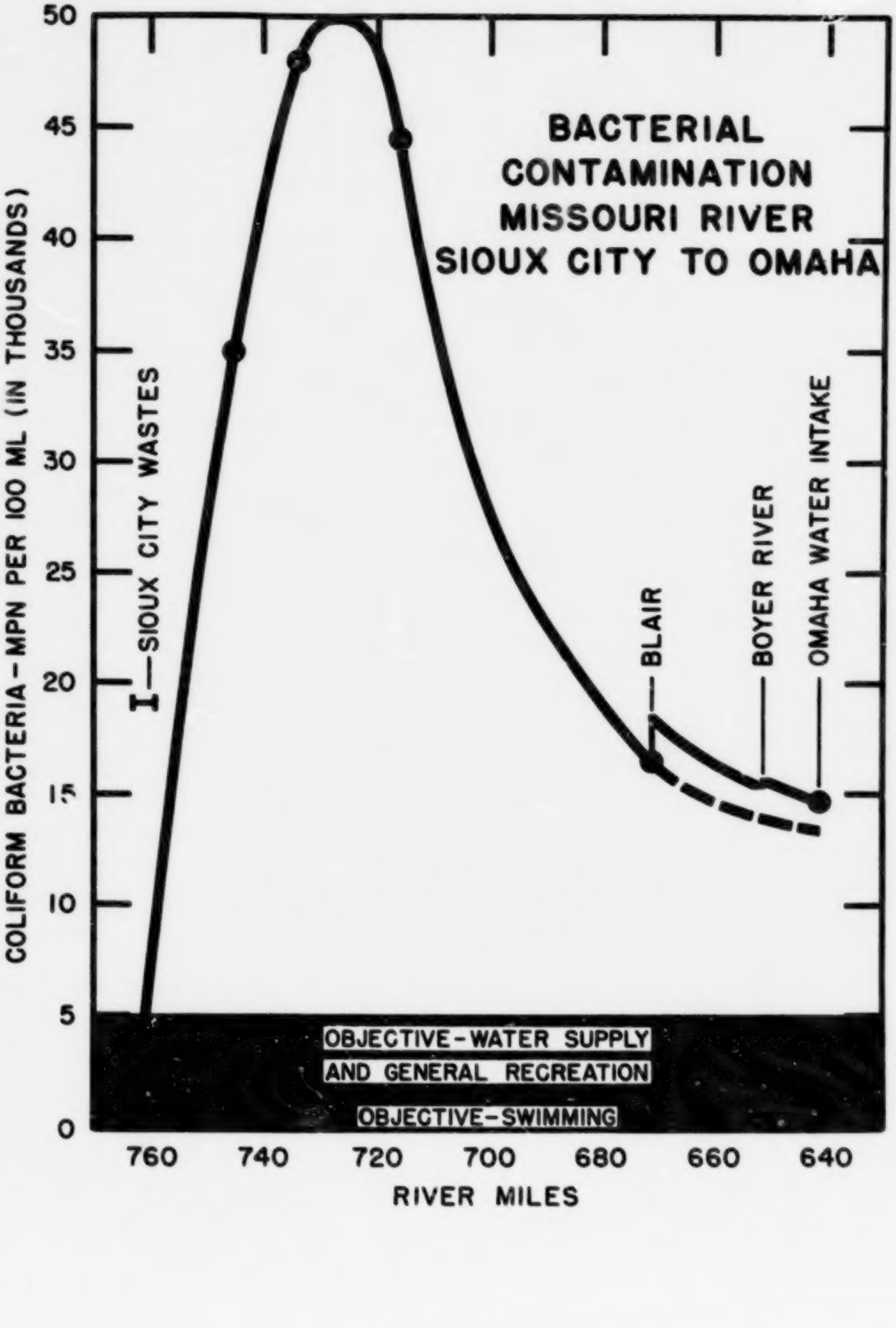
BACTERIAL
CONTAMINATION
MISSOURI RIVER
SIOUX CITY TO OMAHA
COLIFORM BACTERIA - MPN PER 100 ML (IN THOUSANDS)
50
45
40
35
30
25
20
15
10
5
0
SIOUX CITY WASTES
BLAIR
BOYER RIVER
OMAHA WATER INTAKE
OBJECTIVE - WATER SUPPLY
AND GENERAL RECREATION
OBJECTIVE - SWIMMING
760
740
720
700
680
660
640
RIVER MILES

present scale and I concluded from the results that we obtained there that this station was not--that the results we got at this station were not representative because the waste from Sioux City was not well mixed at this point. In other words, by varying the points across the river at which samples were taken almost any value might have been obtained, and therefore I concluded that the results we got at this station were not representative of the sewage load from Sioux City when completely mixed with the river. So that point also does not occur on the chart. The second station below Sioux City had an average MPN of thirty-five thousand one hundred per hundred milliliters.

Q. (By Mr. Edelman.) May I interrupt you, Mr. Kittrell? Does that value appear to represent a thorough mixing of the domestic and industrial sewage?

A. Yes, I believe at that point that the sewage was well mixed, adequately mixed, at least, to yield representative samples. The third station below Sioux City showed an increase above that at the second station to an average of forty-eight thousand per hundred milliliters. The fourth station below Sioux City had an average of forty-seven thousand--I am sorry--forty-four thousand seven hundred per hundred milliliters. This was the station at Decatur, Onawa Bridge.

Q. (By Mr. Samson.) What was that reading, Mr. Kittrell? I am sorry.

A. Forty-four thousand seven hundred. At the Blair Bridge the MPN average had dropped to 16,600. And finally at the Mormon Bridge the MPN dropped further to 14,800. Incidentally, I might note at this time that I have shown a projection of the death rate curve which is indicative of the continued rate of reduction of the coliform organisms from sewage discharged above Blair. At Blair I have shown a vertical line which is a computed addition of coliform organisms due to the discharge of raw sewage at Blair. Between Blair and Omaha I have shown a slight break in the line, upper line, which respresents the contamination that we found, the average contamination, discharged into the Missouri River by the Boyer River during this period of sampling.

Q. (By Mr. Edelman.) Did you cover your sampling at the Mormon Bridge? Did you cover the sampling results at Mormon Bridge, Mr. Kittrell?

A. Yes, I believe I did. At any rate, I will repeat, if I didn't. The average MPN at Mormon Bridge, which is just above the Omaha water intake, was fourteen thousand eight hundred per hundred milliliters.

Q. You referred to this chart as a--to the curve on the chart, rather, as a death rate curve. Would you explain what you mean by that, Mr. Kittrell?

A. Well, normally this has been found below many sources of sewage pollution, when sewage has been discharged into a stream in significant quantities the coliform organisms exhibit a typical pattern downstream below the source of waste. The initial phase of that pattern is a rise to a peak which occurs--well, in this case it occurs about 30 miles below Sioux City. It usually occurs in terms of time of water travel in the river somewhere around 12 to in some cases as long as 20 hours time of water travel below the source of sewage. Following the peak, the coliform organisms start to reduce and they follow a rather typical pattern of fairly rapid reduction for a number of hours, which may be up to two days in some cases, a rapid rate of reduction, this rapid rate of reduction being followed by a much slower rate of reduction subsequently. And this curve that I have here does exhibit the typical type of coliform pattern or death rate curve found below many sources of sewage in other streams.

Q. In other words, your tests showed that the bacterial contamination you are measuring follows the typical pattern--

A. Yes.

Q. --that you would have expected to find?

A. That is correct.

Q. Now, did you evaluate the extent to which this bacterial contamination that you have described at these sampling stations is attributable to sewage discharges from Sioux City?

A. Yes, I have made an estimate of the residual pollution from Sioux City that reaches the Omaha intake. You will have to give me a moment to find the proper note on this, please.

Q. Just take your time.

A. I seem to have too many notes. Here it is finally. I have estimated that the residual bacterial contamination at the Mormon Bridge from all sources above Blair be fourteen thousand eight hundred--no, I am sorry--thirteen thousand four hundred of the fourteen thousand eight hundred average that we found. I estimate that 13,400 of that on the average is contamination from above Blair. Of that total I have estimated--I will give you the exact estimate, but I would like to say that it is, of course, an estimate, a computed value, and it is a rather complex thing to compute--but I estimate that of the 14,800 at this point (indicating), 12,600 per 100 milliliters or 85 percent originated in Sioux City.

Q. Can you tell us how you arrived at that estimate, Mr. Kittrell?

A. Yes. Part of it involved the projection of the curve, as I have already explained, which, incidentally, was done on logarithmic paper since the death rate curve is a logarithmic function, so this projection originally was made on logarithmic paper and has been transferred to arithmetic paper. The rest of the computation involved determination of the coliform organisms above Sioux City, the coliform organisms estimated from the sewered population, the coliform organisms determined in the Floyd River as coming from the packing plants, and determining the percentage that each of these figures represented of the total discharged at this point, at Sioux City. And I applied the percentage discharged at Sioux City to the value of the projected line. This is rather difficult to explain. If I don't make it clear, I will be glad to attempt to do so later. But in effect it is, using the percentage of all known sources of coliform at Blair, applying that percentage to the projected value at Mormon Bridge.

Q. At the bottom of that chart which is Government Exhibit 24 you have some colored sections?

A. Yes

Q. Will you tell us what those represent, please?

A. Those represent the objectives of water quality in terms of MPN for certain water uses adopted by the Missouri Basin Health Council.

Q. Will you tell the Board how the levels of bacterial contamination represented on that chart in accordance with your data relate to those objectives?

A. At the station above Yankton the average of one thousand one hundred per hundred milliliters was only very slightly in excess of the average MPN objective for water used for swimming, which is one thousand per hundred milliliters. The other objective shown here, that of five thousand per hundred milliliters, is for water used for recreation other than swimming and for a source of municipal water supply with reasonably complete treatment. At the peak of the curve below Omaha the MPN at that point, which is indicated by the curve to be fifty thousand per hundred milliliters, is fifty times the objective for swimming and is ten times the objective for recreation other than swimming. At Mormon Bridge, which, as I said before, is just above the Omaha intake, the actual value of coliform organisms found, that is the fourteen thousand eight hundred, was nearly fifteen times the objective for swimming water, swimming quality water, and about three times the objective for water used for other types of recreation than swimming and for a source of municipal water supply.

Q. Mr. Kittrell, I may not have heard you correctly, but I think when you were pointing to the top part of that chart, of the curve, rather, you indicated that it was a station below Omaha. I think you meant below Sioux City, did you not?

A. I meant below Sioux City. I am sorry. That is correct.

Q. A few minutes ago you expressed a judgement and an opinion as to the extent to which pollution from Sioux City's discharges contributed to pollution found down along the river through to Omaha. Did this judgment reflect an evaluation of bacterial contamination reaching the Missouri from tributaries below Sioux City?

A. Yes.

MR. EDELMAN: Mr. Chairman, the Government has a request to make. I understand that a lay witness has arrived who was the subject of a great deal of discussion this morning during Mr. Ross's testimony and if Sioux City counsel has no objection I would like to request the indulgence of the Board to interrupt this witness's testimony at this point. We are about to proceed to another scientific aspect of his report and if there is a breaking point this is it, to put this other witness on.

CHAIRMAN WILSON: You may do so.

MR. EDELMAN: Thank you.

CHAIRMAN WILSON: I assume there is no objection on the part of the city?

MR. DAVIS: No. Just some surprise. That is all right.

MR. EDELMAN: We are surprised, too. We didn't expect him at this time.

MR. DAVIS: That is what I thought.

(Witness withdrawn.)

MR. DETMAR: This gentleman's name is Jim Satterwhite.

JAMES SATTERWHITE

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DETMAR:

Q. Tell this young lady here and the Board your name, your address, and your occupation.

A. My name is James Satterwhite.

Q. Where do you live, Mr. Satterwhite?

A. Dakota City.

Q. And what is your occupation?

A. Commercial fishing.

Q. Now, Mr. Satterwhite, do you see this gentleman at the extreme end over there of the Board? Talk to him, if you can, when you give your answers, please. And that means that everyone will be able to hear you. Mr. Satterwhite, how long have you been a commercial fisherman?

A. Forty years.

Q. In and around Sioux City?

A. No, I fished all the way from Peru to Yankton.

Q. I see. How long have you been fishing around Sioux City?

A. Since '41.

Q. Mr. Satterwhite, have you seen any evidences of pollution in the Missouri River at or near Sioux City?

A. I certainly have, plenty of it.

Q. Would you please describe to this Board what those evidences are?

A. Well, there is rubber goods, there is human wastes, there is packing house stuff, there is all kinds of stuff comes out of the packing houses.

Q. Does this pollution you have just described have any effect on your fishing business?

A. It certainly does. You have got to pick it out of your nets, when you catch it in the nets you have got to pick it out.

Q. Does this cause you any kind of trouble?

A. Well, it is kind of a nasty mess picking it out, if you would call that trouble.

Q. Where do you fish in the river now?

A. Well, at the present time I am fishing below east of Homer, Nebraska, Winnebago.

Q. How far down the river from Sioux City is that?

A. Well, I would say anywhere from 12 to 15 miles.

Q. Why do you fish so far down the river, sir?

A. To get away from the gassy fish.

Q. Where are these gassy fish taken?

A. How is that?

Q. Where do you find these gassy fish?

A. Closer up to the city.

Q. I see. Well, what is wrong with gassy fish, Mr. Satterwhite?

A. Well, just people can't eat them.

Q. I see.

A. They say they taste like kerosene.

Q. Mr. Satterwhite, have you ever observed any other people using the river for recreation?

A. Oh, I see boats and stuff running up and down the river, yes.

Q. Ever see anyone swim in the river?

A. Oh, yes, see the youngsters from town will get in below there and swim in the river.

Q. Do you ever see any of them swim in this polluted water?

A. Well, it is all polluted as far as I am concerned, any time it runs down the river.

MR. DETMAR: The Government has no further questions at this time.

CHAIRMAN WILSON: Cross-examine?

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Satterwhite, can you hear me over there?

A. How is that?

Q. Can you hear me now?

A. I will try to. If I don't hear you, I will ask you.

Q. Fine and dandy.

MR. DAVIS: Am I in anybody's way here?

Q. (By Mr. Davis.) Your home is on the banks of the Missouri?

A. Yes, sir.

Q. Down by Dakota City?

A. That is right.

Q. How long have you lived there?

A. I have lived there since '46.

Q. How large is your family that lives there?

A. I have got seven youngsters and myself and wife.

Q. And you have lived there since--I am sorry, I didn't hear you--'46?

A. '46, that is right.

Q. During all that time you have fished commercially in the river?

A. Yes, sir.

Q. Mostly below?

A. Yes, mostly below. I had to go below.

Q. Sioux City?

A. Yes, sir.

Q. About how many pounds of fish do you catch each year?

A. Well, now, if I was down to home I could tell you, I could show you my reports, but I ain't got them with me and I ain't going to try to make--

Q. Well, is it true, Mr. Satterwhite, that that is your sole source of income, I mean this is your livelihood, or not?

A. Yes, my livelihood.

Q. Would you know about how many pounds of fish per month that you take?

A. Well, some months you take more than you do others. No, I wouldn't know, because I would have to look at my papers. You see, I never got no education, I never went to school any.

Q. I am not asking you, Jim, the exact figures. I am just trying to get to establish about how much fish you catch.

A. Oh, you see, we only have about five months that we can fish.

Q. What was the last month last year that you had a good month?

A. The last good month I had was in August.

Q. And that was about how many pounds of fish?

A. I would say I caught probably two thousand pounds.

Q. About what did each fish weigh? What is the average, a couple pounds?

A. Oh, they will run anywhere from one pound to twenty pounds.

Q. Are they mostly carp?

A. Carp, yes, that is the most of our catch.

Q. That was in August of '58 you say you had about two thousand pounds. Now, out of those two thousand pounds of fish in August of '58 how many fish were brought back to you or what complaint was made?

A. As near as I remember I had five different complaints.

Q. Five different complaints?

A. Yes.

Q. Out of two thousand pounds of fish?

A. Yes, sir.

Q. And those represented individual sales, is that correct?

A. Individual sales, yes.

Q. Where were those fish caught about which complaint was made, if you know?

A. Well, I wouldn't know, because I caught them all up and down the river, you know, and that is something that I couldn't tell you, just where they come from.

Q. Have you--

A. Come from some place below Sioux City down east to Winnebago.

Q. Somewhere in there was where these fish were caught?

A. That is where I was fishing.

Q. You intend to keep on fishing, though, don't you?

A. Well, I am as long as I am able. I have got to do something; I have got no other source of income.

Q. Have you ever fished the stink hole?

A. Yes, sir.

Q. At the air base?

A. Yes,sir.

Q. When was the last time?

A. It has been about two years ago.

Q. And in about what month, Jim?

A. In April.

Q. Were you able to get in there?

A. Yes, sir, was then. You couldn't now.

Q. That is about April of '57?

A. Yes.

Q. Was there sewage in there from the air base?

A. There certainly was.

Q. What kind of fish did you catch there?

A. Caught carp.

Q. About how much in one haul?

A. Well, I don't know. I would say four or five hundred pounds was the best haul I ever made there.

Q. And did you sell all of those?

A. No, you don't sell all the fish you catch.

Q. Well--

A. Not people enough coming in to get them, you see, but you have to make a record of what you catch.

Q. Then I understand you to say that as far as you are concerned you can't sell all the fish that you can get?

A. No.

Q. In other words, there is enough fish, isn't there?

A. There is enough fish.

Q. But you don't have enough customers?

A. Don't have enough customers.

Q. Right. Now, so there is no shortage of fish that would make you want to quit the occupation?

A. Oh, no, not me.

Q. Would you recall, of those fish that you took from the stink hole, did you have any rejects?

A. Not that I remember of, no.

Q. None came back?

A. No.

Q. All your customers were satisfied with them?

A. Yes, sir.

Q. You mentioned that that stink hole, you can't get in there now. Could you describe in your own words the conditions there as far as the revetments or pilings or whatever it is? Use your own words, Jim.

A. Well, it is all closed in now, you see. The River can't come through. You see, when I fished down there the river run through it.

Q. Right.

A. Right down around through it.

Q. And what is the situation now?

A. They put in that rock revetment and no water can get in there, only just what comes through the sewer.

Q. I see. Can any of it come out through there at all?

A. Oh, yes, it comes right out into the river.

Q. From the sewage?

A. Yes.

MR. DAVIS: I believe that is all, Mr. Chairman.

CHAIRMAN WILSON: Any further questions by the Government?

MR. DETMAR: Yes.

REDIRECT EXAMINATION

BY MR. DETMAR:

Q. Mr. Satterwhite, you told us, I believe, that you go about a good many miles down river from Sioux City to fish now, is that right?

A. That is right.

Q. Did you have to get any special equipment to do this? It is considerable trouble to go down there?

A. Well, all I have to do, I had to make a trailer to haul down with, see, and haul my boat back. Yes.

Q. You had to make a trailer?

A. Yes, a little extra expense and trouble.

Q. I see. Now, I heard you say that there aren't enough customers for the fish. Do you know of any particular reason why people don't buy fish?

A. In the hot weather they don't cook, you see. That is what they tell me, now. There is less cooking done, you know. People lunch more and they just don't build these fires to make the heat.

Q. Well, Mr. Satterwhite, have you ever heard anyone complain about the quality of the fish you sold them?

MR. DAVIS: That is objected to as repetitious, as having been asked and answered on direct examination, Mr. Chairman.

CHAIRMAN WILSON: Received subject to the objection.

Go ahead, answer the question.

A. What was it now? I am hard of hearing.

Q. (By Mr. Detmar.) Has anyone ever complained to you about the fish you sold?

A. Well, those fish that they said tasted gassy, that is the only ones. But otherwise there is people that has come down there and wouldn't buy fish because I was in below the city there, you know, they was afraid of getting them gassy fish.

Q. Are you saying that if people know that you took the fish just below the city--

A. Oh, they won't buy them.

Q. They won't buy them?

A. That is the reason why I am going in below now.

MR. DETMAR: I see. I think that is all.

CHAIRMAN WILSON: Any further questions? Members of the Board?

That is all.

(Witness excused.)

MR. EDELMAN: I recall Mr. Kittrell, please.

F. W. KITTRELL

resumed the stand and testified further as follows:

DIRECT EXAMINATION (Cont'd)

BY MR. EDELMAN:

Q. (By Mr. Edelman.) Mr. Kittrell, I believe the last question I asked you was whether your judgment as to the extent to which pollution from Sioux City contributed to the pollution you found at Mormon Bridge reflected in the evaluation of the bacterial contamination reaching the Missouri River from tributaries below Sioux City.

A. Yes.

Q. Was this evaluation based on the study you have described?

A. The study of the tributaries extended beyond the end of the main river sampling period of August 20th through 26th. The study of the tributaries continued to August 29th. So with that exception, that is correct, yes.

Q. Earlier you indicated on Government Exhibit 23 the location of the sampling stations on the tributaries.

MR. EDELMAN: May I ask that that chart be made visible now?

Q. (By Mr. Edelman.) Will you tell us what the evaluation of the data you obtained by that sampling indicated with respect to the bacterial contribution of these tributaries?

A. Yes. I have the individual MPN's on the streams, the tributary streams themselves, I have the stream flows. I think it will be more meaningful, however, rather than giving those figures to indicate what MPN would be added to the flow of the Missouri River by the MPN discharged from the several tributaries. If we add up the total coliform organisms found in all tributaries we find that all tributaries would have contributed less than four hundred per hundred milliliters to the Missouri River during this period. Of the tributaries-- of the thriteen tributaries sampled, six would have contributed or did contribute less than one coliform organism per hundred milliliters to the flow in the Missouri River. Those tributaries were the James, the Vermillion--incidentally, this station on the Vermillion was below the point of sewage discharge from Vermillion, but by the time that reached the Missouri River there would have been less than one coliform organism per hundred milliliters added to the flow in the Missouri River from the Vermillion River. The Floyd River above Sioux City contained--would have added, if discharging directly to the Missouri at the point above Sioux City would have added, less than one MPN per hundred milliliters.

Q. That, Mr. Kittrell, is above the sources of sewage?

A. Above the sources of wastes from Sioux City. The Monona-Harrison ditch, the Allen Creek and Honey Creek (indicating) would have added less than one coliform organism per hundred milliliters to the Missouri River.

Q. (By Mr. Samson.) Is that for the three ditches, Mr. Kittrell?

A. Pardon me?

Q. Is that for the three ditches?

A. Each of those would have added less than one per hundred.

Q. Per ditch?

A. Yes, that is correct.

MR. SAMSON: Thank you.

A. Five of the tributaries would have added or did add between one and six MPN's per hundred milliliters to the flow in the Missouri River. These were the Big Sioux River (indicating) above the point where the sewer from Sioux City discharges, the little Sioux River (indicating), the Omadi Ditch (indicating), the Tekamah Ditch (indicating), and Cameron Ditch (indicating). Two of the tributaries did add coliforms of some significance. One was the Soldier River (indicating)--

MR. DAVIS: I beg your pardon, Mr. Kittrell. I didn't get the figure for the five tributaries that you just described.

A. Between one and six per hundred milliliters.

MR. DAVIS: Between one and six per hundred milliliters?

A. That is right.

MR. DAVIS: Thank you, sir.

A. And these are all average figures for such samples as we took from the tributary. The Soldier River (indicating) added an average of a hundred ten MPN per hundred milliliters to the river, and, as I pointed out on the other chart, the Boyer River (indicating) did add some appreciable coliform contamination, which in this case was two hundred sixty per hundred milliliters, to the flow of the Missouri River. I might add that I do have those additions of coliforms indicated on this first Government exhibit that I submitted --

Q. (By Mr. Edelman.) For the record that is Government Exhibit 21?

A. 21.

SECRETARY AYERS: That is right.

A. This red line here (indicating)--I don't know whether you can see it--is in proportion to the 5,000 population scale on this side (indicating), and the red line--This first one I referred to is on the Soldier and the second one on the Boyer (indicating). Those lines are in terms of the MPN's those two streams would have added to the Missouri River during the period that we sampled.

Mr. Kittrell, do these figures represent the bacterial contamination contrbuted by municipalities and other sources of sewage and livestock wastes in the area drained by these tributaries?

A. That is correct. I might say this is during the period that we sampled, yes.

Q. During the period you sampled it?

A. Yes.

Q. During the course of your examination of samples at the Omaha--near the Omaha water intake, did you find a variation in these samples, Mr. Kittrell?

A. Yes, there was some variation.

Q. To what did you attribute that variation?

A. When I examined the samples collected at different times during the day and during the night--and, incidentally, we did continue the study to include sampling for two days eventually around the clock. We started in at I believe it was 9 o'clock on the morning of the 28th, sampled at 2-hour intervals until the morning of the 29th and then starting at 8 a. m. on the 29th we sampled until midnight at 2-hourly intervals until midnight of the 29th. And on examining these data there appeared to be a somewhat lower coliform organism concentration during the daylight hours at the Omaha intake than during the night hours. In the night hours the coliform concentration appears to reach a peak. I believe this to be due to the fluctuation in discharge of coliform organisms principally from Sioux City. It may be influenced--it is undoubtedly influenced to some extent by the other smaller towns, but I believe that principally this cycle of coliform organisms during the day at the Omaha intake is due to the cycle of bacterial contamination added at Sioux City.

Q. Did you obtain an average MPN value for these samples, Mr. Kittrell?

A. The average for all of the samples collected during these two days was nineteen thousand eight hundred per hundred milliliters.

Q. That is higher than the--

A. I am sorry, let me correct that. That was nineteen thousand five hundred. I am sorry.

Q. That is the higher than one earlier figure, which I recall was about fourteen thousand?

A. Fourteen thousand eight hundred. That is correct.

Q. Do you know at what time the Omaha plant takes its sample of the water at the intake?

A. The sample is collected routinely at 8 o'clock each morning.

Q. And as I understood your testimony, you were of the view that samples during the night hours might yield higher values, is that correct?

A. I believe that to be the case, yes.

MR. EDELMAN: That is all, Mr. Chairman, at this time.

CHAIRMAN WILSON: You may cross-examine, Mr. Davis.

MR. EDELMAN: Oh, I am sorry. I am sorry.

Q. (By Mr. Edelman.) Mr. Kittrell, you have testified as to the bacterial level from Yankton down to Omaha. Do you consider that these values of bacterial contamination indicate a health hazard to persons coming in contact with the Missouri River?

A. Starting at the first station below Sioux City and continuing down to Omaha, I believe that the concentrations of coliform organisms found in the river do constitute a hazard to those who come in contact with the water on the river.

Q. As I understand it, coliform organisms are not themselves generally considered pathogens?

A. Not generally, that is true.

Q. Then if you have a high level of coliform contamination, does that indicate anything in the light of your sanitary survey that was made here?

A. Taken in connection with sanitary survey which reveals the sources of sewage discharge, it does indicate a very high degree of probability that pathogenic organisms also are present.

Q. During the course of this study, Mr. Kittrell, did you give any instructions to your personnel concerning the taking of photographs?

A. Yes. I asked them to take photographs of anything that appeared to be significant from the standpoint of visible effects of pollution.

Q. Did any member of your staff take photographs in accordance with this instruction?

A. Yes, Mr. William H. Davis, who was in charge of the field party, did take such photographs.

MR. EDELMAN: I offer as Government Exhibit No. 25 for identification a photo which has the legend on the back "Material removed from the intake screen of Omaha Metropolitan Utilities District", as Exhibit No. 26 for identification a photograph which bears the legend on its back "Accumulation of grease on southeast corner of primary chlorination contact tank at Omaha Metropolitan Utilities District water treatment plant", and as Exhibit 27 for identification a photograph which bears on its back the legend "Accumulation of grease on southwest corner of primary chlorination contact tank at the Omaha Metropolitan Utilities District water treatment plant".

(Government's Exhibits Nos. 25,
26, and 27, respectively, marked
for identification.)

Q. (By Mr. Edelman.) Mr. Kittrell, I call your attention to Government Exhibit No. 25 for identification and ask you whether that purports to be a photograph of material removed from the intake screen of Omaha Water District plant on August 25, 1958?

A. Yes, it does.

Q. Did you ever see that material?

A. Yes, I saw it.

Q. Can you describe it?

A. It was a rather indefinite type of material with no definite form or outline, but it did appear to include a considerable amount of a white substance that resembled grease. In addition I noticed in it a few small bones that appeared to be the rib bones of some animal. I could not identify it as to what it was.

Q. Is that picture a fair representation of the material you saw?

A. It is.

MR. EDELMAN: I offer it in evidence as Government Exhibit No. 25.

MR. SAMSON: Mr. Edelman, can you fix the time on the date?

MR. EDELMAN: Yes. Let the record show that this was collected on August 25, 1958, during the course of the study.

CHAIRMAN WILSON: Any Objection?

MR. DAVIS: As incompetent, irrelevant and immaterial, particularly that no proper foundation has been laid.

CHAIRMAN WILSON: Just a minute.

Q. (By Chairman Wilson.) Mr. Kittrell, do I understand you to say that you observed this stuff yourself that is shown in that photograph?

A. Yes, I saw it. I might add that I did not see it on the intake screen myself. It had been removed and was still in the intake structure.

Q. Is this photograph a correct depiction of material that you observed yourself?

A. That is correct.

Q. At about the time the photograph was taken?

A. Yes.

CHAIRMAN WILSON: It will be received subject to the objection.

(Government's Exhibit No. 25 received in evidence.)

Q. (By Mr. Edelman.) I now call your attention to Government Exhibit No. 26, which purports to be a view of the southwest corner of the primary chlorination contact tank at the Omaha Metropolitan Utilities District water plant on September 10, 1958, and ask you whether that condition was reported to you during the survey?

A. Yes, it was observed--Mr. Davis reported to me that he observed this during the period that the survey was under way. I might add that this was taken on September 10th. I have not included September 10th in the dates of sampling that I have described thus far. We did continue sampling from September 3rd through September 11th at the Omaha intake in connection with a study that we made from above Omaha to St. Joseph during September 3rd through 11th, and this picture was taken during that time.

Q. But this picture was taken by Mr. Davis, wasn't it?

A. That is correct.

Q. And he had previously reported to you this condition existing in the chlorination tank?

A. He had not previously reported it to me. He reported it to me when he brought the picture to me.

Q. I see.

A. Yes.

Q. And that was submitted to you in your official capacity?

A. That is correct.

Q. And this is part of your official records on this subject?

A. That is correct.

MR. EDELMAN: I offer this in evidence as Government's Exhibit No. 26.

MR. DAVIS: Same objection as last above urged, Mr. Chairman.

MR. EDELMAN: Do you want to look at it?

MR. DAVIS: Yes.

Q. (By Chairman Wilson.) Mr. Kittrell, do I understand that you are or are not able to identify the contents of this photograph from your own observation?

A. I can not from my own observation. I was not--

CHAIRMAN WILSON: The objection will be sustained.

A. I was not on the ground at that time.

(Government's Exhibit No. 26, was rejected.)

MR. EDELMAN: Mr. Chairman, Government Exhibit No. 27 is another photograph taken on September 4, 1958, to which the same circumstances, and I assume the same objection, will apply.

MR. DAVIS: Same objection.

CHAIRMAN WILSON: What does the witness say about this?

Q. (By Mr. Edelman.) Mr. Kittrell, as I understand it, you have not personally seen the condition depicted on Government Exhibit No. 27?

A. That is correct, I have not.

Q. This photograph was furnished by a member of your staff in accordance with your directions in the execution of his official duty?

A. That is correct.

Q. And it was furnished to you as part of your official records on this study?

A. Yes.

CHAIRMAN WILSON: Well, unless the witness can testify that he has observed this condition himself and that this photograph correctly depicts what he saw, the objection will have to be sustained.

A. I can not.

(Government's Exhibit No. 27 was rejected.)

Q. (By Mr. Edelman.) Mr. Kittrell, do you know of any other concerns interfering with the use of the river which are attributable to the pollution originating in Sioux City that you have described?

A. It has been reported to me that condoms and grease have been noted at numerous points between Sioux City and Blair. It has also been reported that condoms and grease accumulate on the intake screen of the Omaha Metropolitan Utilities District. In addition I have, of course, heard--had reports of feathers in the vicinity of and below Sioux City, and also there have been reports of paper and similar items, including the grease that I mentioned earlier, accumulating on fishermen's nets and interfering with fishing and also on sport fishing lines and interfering with sport fishing.

Q. Do you have an opinion as to whether the surface runoff from tributary streams has any important effects on the bacterial contamination of the river, at least during the period of your study?

A. I do not believe that it did at the time of our study or during the time of our study.

MR. DAVIS: May I have the answer, Mrs. Rankin?

(Answer read.)

MR. DAVIS: Thank you.

CHAIRMAN WILSON: Are you through, Counsel?

MR. EDELMAN: Yes, sir, Mr. Chairman.

CHAIRMAN WILSON: You may cross-examine.

MR. DAVIS: A point of information, Mr. Chairman. Counsel said that that was all for him at this time.

MR. EDELMAN: Yes.

MR. DAVIS: Do you contemplate further direct examination?

MR. EDELMAN: No, but I contemplate that after your corss-examination we may want redirect.

MR. DAVIS: You are all through on direct? That is all I want to know.

MR. EDELMAN: I am all through with direct at this time.

MR. DAVIS: What are your plans for lunch?

CHAIRMAN WILSON: I propose to adjourn at a quarter to 12 by my watch to permit the party that is going on the river to get lunch early.

MR. DAVIS: May I suggest this to you, Mr. Chairman, then. There is only a matter of eight minutes involved. If I had that much time to study his direct examination perhaps I could save more than that when I do start, inasmuch as you are only going to have eight minutes here now. And then I would cross-examine him after your return.

CHAIRMAN WILSON: Well, does the Government counsel have any way of using up a few minutes now? Have you some witness that would take only a few minutes? We want to use all the time we can.

MR. EDELMAN: I appreciate that, Mr. Chairman, but I think it would not be fair to our next witness to put him on for a few minutes and then have it interrupted.

MR. DAVIS: I agree with that, of course.

CHAIRMAN WILSON: Then just a minute.

(Off the record.)

CHAIRMAN WILSON: All right, we will adjourn now until 3 o'clock this afternoon or as soon as we can get back.

- - -

(NOON RECESS.)

WHEREUPON, the hearing stood at noon recess until the hour of 3 o'clock in the afternoon, at which time the following further proceedings were had and entered of record, to wit:

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AFTERNOON SESSION, WEDNESDAY, MARCH 25, 1959

CHAIRMAN WILSON: The hearing will be in order.

MR. EDELMAN: Mr. Davis has indicated that if the Government has any further questions on direct, so that he can cover more of a field in his cross-examination, that he would have no objection to our resuming for a few questions. And the Government would like to address two or three more questions to Mr. Kittrell.

CHAIRMAN WILSON: You don't have any questions you want to ask right now?

MR. EDELMAN: Yes, we do, Mr. Chairman.

CHAIRMAN WILSON: Oh, I see.

MR. EDELMAN: Mr. Davis indicated he would have no objection.

CHAIRMAN WILSON: Go right ahead. If you have any further questions you want to ask right now, proceed.

F. W. KITTRELL,

resumed the stand and testified further as follows:

DIRECT EXAMINATION (Cont'd.)

Q. Would appropriate treatment of Sioux City wastes result in a reduction of the coliform contamination at Sioux City in the Missouri River?

A. Yes.

Q. Would you repeat your answer? I didn't quite get it.

A. Yes.

Q. Would it also result in a reduction of pathogenic organisms which are associated with coliform bacteria?

A. Yes, appropriate treatment could.

Q. (By Mr. Samson.) What is the answer to that question?

A. Yes, appropriate treatment would, yes.

Q. (By Mr. Edelman.) Would also result in a reduction of organic wastes that are put in the river at Sioux City?

A. Yes.

Q. Now, would such treatment also result in reducing the level of bacterial contamination in the reach of the Missouri between Sioux City and Omaha, Nebraska?

A. Yes.

Q. Would it also result in lowering the level of organic pollution between Sioux City and Omaha, Nebraska?

A. Yes.

Q. Are engineering methods known and available that will permit the construction of a sewage treatment plant which would produce this result?

A. Yes.

MR. EDELMAN: That is all, Mr. Chairman.

CHAIRMAN WILSON: Cross-examine.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Kittrell, Exhibit 22 has to do with sources of organic pollution. Would that chart, and of course the studies that you made before you prepared it, enable you to determine matters having to do with the BOD or the oxygen requirements in the river or the oxygen supply?

A. You are speaking of the chart here on the--

Q. Well, and the information you have concerning it?

A. Yes.

MR. EDELMAN: I am not quite sure I understood the question. Could the reporter report it?

(Question read.)

A. Yes.

Q. (By Mr. Davis.) What are the objectives concerning this matter in a general way that are sought in rivers?

A. With respect to what in particular, Mr. Davis?

Q. Well, to the supply of oxygen necessary in the water to sustain aquatic life?

A. Well, I might state an objective that very generally is used is that the dissolved oxygen should not be less than five parts per million. This is a very commonly used objective.

Q. Was there anything in your studies to indicate that at any place in the river between Yankton and Omaha there was less than five parts per million of dissolved oxygen?

A. No.

Q. Do you have any data to indicate the exact amount at these various sampling stations of dissolved oxygen in the river?

A. I do not have such information with me.

Q. Have you hitherto made such a study or do you have information concerning this particular stretch of the river with reference to dissolved oxygen in parts per million?

A. We made some dissolved oxygen determinations during the early phases of our study.

Q. And about when was that?

A. I do not know the exact dates. About August 20 and for two or three days thereafter.

Q. Of what year, sir?

A. Of 1958.

Q. I see. Had you in previous years made--

A. No, I had not.

Q. --or studied any such data?

A. No.

Q. There is nothing to indicate, is there, that now or at any time previous hereto that you know about that that situation has fallen below the objective of five parts per million?

A. I can not answer that with certainty. The water supply--I mean the Water Pollution Series 49--47 report does have some dissolved oxygen values at some points on the river which were below five parts per million. I can not at the moment specify where those points were.

Q. You can't recall any of them in this reach of the river specifically, can you, sir?

A. Not in this particular area, I can not at the moment.

Q. In fact, that was below Kansas City, was it not?

A. I believe there were some below Kansas City.

Q. My purpose in this, Mr. Kittrell, is to establish, and I will now ask you if so far as this proceedings is concerned we can disregard this dissolved oxygen factor?

A. So far as this proceeding is concerned, yes.

MR. EDELMAN: Just a minute. Mr. Chairman, I don't think the witness is in a position to make any concessions as far as the proceeding is concerned. The Government is prepared to concede that as far as this case is concerned it is not complaining that the dissolved oxygen level in the Missouri River in this stretch is less than five parts per million, which is apparently the standard for acquatic life or fish. We are willing to concede that there is no issue about the five parts per million level of dissolved oxygen in the water.

MR. DAVIS: I thought that was the situation, Mr. Chairman, and that is all I wanted to establish. That is, we removed one possible issue between us.

Q. (By Mr. Davis.) Now, in connection--

MR. EDELMAN: Just for the record, Mr. Davis, I don't think there has been any testimony up to this point which indicated that that was an issue.

MR. DAVIS: Correct. I just wanted to make sure.

Q. (By Mr. Davis.) The matter of the organic pollution in the solids in the river, of course, would have a direct relation to the amount of dissolved oxygen in the water, isn't that correct?

A. The organic matter does utilize dissolved oxygen, yes.

Q. So far, then, as the Government's Exhibit 22 is concerned, what I have been interrogating you about does not indicate, nor the data that you got to prepare it, that there is anything wrong with that dissolved oxygen?

A. Not with the dissolved oxygen.

Q. Right, sir. Now, the studies that you made concerning the coliform content of the water were made, as I recall now, during the week's period of August 20th to 26th of '58?

A. On the main river, yes.

Q. I did not hear you clearly this morning concerning the number of tubes used in the tributaries or the mouths of them or how often you did that. I understand what you did out in the river.

A. The number of tubes?

Q. Yes.

A. We used five tubes of each dilution on the samples that we ran in the laboratory.

Q. In the tributaries?

A. Yes, the same as--

Q. Did you do that each day for the seven as in the main river?

A. No, we did not. We took between three and four samples during the period that I indicated from each tributary.

Q. Mr. Kittrell, during the time that this sampling was done do you have any information concerning the river height at that time?

A. Concerning what?

Q. The height of the river?

A. I have no record of height of the river, no. We may have it in our records, but I do not have it with me

Q. Do you have any recollection as to what the velocity of the flow was?

A. I am a little at a loss on this. We did not make any specific determinations of velocity of flow.

Q. Now, Mr. Kittrell, at some times I may mislead you by using the wrong phrase and don't hesitate to correct me. Of course I was wondering if the flow was twenty-five thousand cubic feet per second of thirty?

A. Oh, oh. The flow was in the range, according to records, provisional records of the U. S. Geological Survey, the flow, the stream discharge was within the range of about 27,500 to 29,500 during this period.

Q. And I have lost the last part of your answer.

A. The flow was in the range of 27,500 to 29,500 during this period.

Q. Cubic?

A. Cubic feet per second.

Q. Yes. You see, our trouble was I had used the wrong phrase when I asked the velocity. Would you know the flow time of the water in the Missouri River from Sioux City to the water instake there at Omaha at 27,500 to 29,500 cubic feet per second?

A. Again referring to WPS 47, there is a curve of flow velocities against discharge which indicates that the time of travel was around 48 hours.

Q. At that many cubic feet per second?

A. At that cubic feet per second, yes.

Q. Would you have any quarrel with that figure?

A. The diurnal variation in coli that we found, if reliable, indicates that the flow time might have been somewhat less than 48 hours.

Q. What is your best judgment, Mr. Kittrell, as to what it would be?

A. Well, if I may accept the evidence of this circle, then the flow time was probably in the range of around 30 tO 36 hours, somewhere in this range.

Q. So to the extent of that you disagree with WPS 47 on the flow time?

A. I am not prepared to disagree fully, but there is an indication that that may be the case.

Q. In times such as during the winter, Mr. Kittrell, where the number of cubic feet per second is reduced to 15,000 to 18,000, which is what I recall the navigation man to testify, what effect would that have on the flow time between Sioux City and Omaha?

A. According to the same curve it would increase the flow time to some extent. I do not have any figure on that at the moment.

Q. To some extent?

A. Yes. By several hours, I would estimate.

Q. Do you have any information as to what, if any, effect this would have on the die-out rate of the coliform organisms which you were making a count of?

A. Well, I can state in general that coliform organisms tend to die off--I am sorry. Maybe I have left your question. Would you repeat your question?

Q. You were going fine. Go right ahead, sir. Answer your own way.

A. In general, in colder weather the coliform organisms die off more slowly than in warm weather.

Q. If the temperatures--

A. Pardon me?

Q. Assuming the same temperature, or about the same, would the die-out be greater in the slower-moving water?

A. You would expect a smaller percentage of the maximum coli to arrive at a downstream point with longer time of water travel.

MR. EDELMAN: Mr. Chairman, am I to understand Mr. Davis's question, that he is associating a summertime temperature with a winter flow?

MR. DAVIS: No. What I am trying to establish, Counselor, is that the tests that he made were made during the time of the fastest flow and that, therefore, the results that he shows would be the maximum so far as the velocity of the flow of the river is concerned.

Q. (By Mr. Davis.) Now, Mr. Kittrell, you have heard my statement to counsel. That is what I was arriving at rather awkwardly. How close am I to being correct?

A. Well, I don't think we can select a single factor like this, Mr. Davis, and say that that will be the overriding factor. There are too many variable factors involved in the performance of the coliform curve between summer and winter conditions and high flow and low flow conditions.

Q. Right.

A. I did answer you originally that in general, other conditions being the same with longer time of travel, a smaller percentage of the coliform persist for the same distance.

Q. Referring you to the exhibit--and I am sorry to have to come over here--24, there is, as you said this morning, quite a precipitate drop and then a leveling off. Does that have anything to do with the time, the flow time or anything like that?

A. In general--well, now, maybe I still don't understand your question. Does the leveling off have anything to do with the flow time? Is that your question?

Q. Yes.

A. In general there is a change from the relatively rapid rate soon after pollution is added to a slower rate which may take place within, well, somewhere between one and two, maybe three days below the peak of the curve.

Q. Mr. Kittrell--

A. And that this is a time factor. I think that is a direct answer to your question.

Q. Mr. Kittrell, during this period in the last part of '58 what was the weather along this reach of the river where you were supervising the tests insofar as precipitation was concerned?

A. On three days during that period there was precipitation.

Q. To any great extent?

A. I have reviewed the records for a number of stations and on the first of this three-day period, which I believe was August 23rd, I would characterize the rainfall as quite low. On the second and third days the rainfall was in the range, generally, of something like three tenths to I believe as high as nine tenths at one station of an inch, three tenths to nine tenths of an inch.

Q. Would you recall which station?

A. I don't believe I have that information with me.

Q. You see, Mr. Kittrell--

A. I may have it, but I can't recall at the moment.

Q. Here at Sioux City we had no rainfall all summer, but we do know there was rain all around us and what I was wanting to establish was where in this area did the rainfall occur?

A. Well, I would characterize it as a fairly general rainfall on both sides of the river within the range that I have stated.

Q. From Yankton down?

A. I am thinking principally now of from Sioux City down.

Q. From Sioux City down. In connection with the tests made of the tributaries, would you recall--now I may have the wrong exhibit to refer to. Which one do I want? I believe this one, don't I, sir? Referring to Exhibit 23, you testified concerning these samples at the tributaries as contributing in some instances one coliform per one hundred milliliters, and so forth. Where were your samples taken with reference to the juncture of the tributary and the Missouri?

A. Would you care to specify any particular stream?

Q. Well, what I am getting at was this-- Well, yes, let's take the Vermillion, for example.

A. I am sorry, this is not--I don't have the figures right there that I thought I had. The Vermillion was taken at a point about five tenths of a mile above its mouth.

Q. Above its mouth?

A. Yes.

Q. And your tests showed what on its contribution?

A. I recall that it was less than one. Yes, less than one per hundred milliliters.

Q. Yes, that is my recollection too, Mr. Kittrell. How did you work this out to compensate for--I mean how did you arrive at your figure for the contribution to the Missouri? In other words, to a layman like me it would seem that that concentration would, of course, be higher within the Vermillion River, but--

A. That is correct.

Q. And you have taken into account the volume of the Missouri?

A. I have taken into account the volume of the Missouri, the flow in the Vermillion, the concentration of coliform organisms in the Vermillion water. It is a simple matter of dilution of the flow of the Vermillion combined with the MPN of the Vermillion and the flow in the Missouri River.

Q. And so, of course, that would not be the measure of the coliform count in the Vermillion River itself?

A. No, not at all, no.

Q. What other tributaries between Yankton and the Big Sioux here at Sioux City did you test?

A. Between--

Q. Is that the only one?

A. Between Yankton and--

Q. And the Big Sioux River here at Sioux City.

A. We checked the James also.

Q. And that, as I recall, was from one to six or one?

A. The James was less than one also.

Q. Less than one. Any others tested?

A. In that particular section?

Q. Yes.

A. The Big Sioux was the next downstream tributary that was sampled.

Q. Well, now, one of your sampling stations was just above Sioux City. Where was that located, sir?

A. That was a couple of hundred feet, possibly, above where the Big Sioux River runs into the Missouri.

Q. As I heard your testimony, at Yankton the average during the week that you made your tests was 110?

A. One hundred eleven was the figure.

Q. One hundred eleven, that was--

A. I will settle for a hundred ten. Close enough.

Q. And just above the City of Sioux City during the same period of time the average coliform count was eleven hundred?

A. That is correct.

Q. Now, with these tributaries apparently contributing, according to your testimony, only three or four in this coliform count, I am having difficulty in understanding how you arrive at 1,100 from 111. Would you care to comment on that?

A. My opinion is that most of that 1,100 average represents residual pollution from Yankton and from Elk Point.

Q. Well, Elk Point empties into the Missouri its sewage through a creek or what or directly into the river?

A. Directly into the river, is the information that I have.

Q. I see. So that the rise of about a thousand, you think, would be mostly from Elk Point, is that correct?

A. From Yankton and Elk Point combined.

Q. I see. These figures, Mr. Kittrell, that you have given for your sampling were, of course, not available, were not used by you in the July conference, that is obvious?

A. No.

Q. You are cognizant of the fact that they vary materially downward from those used in the July '58 conference?

A. Yes.

Q. And in some instances are as much as or almost--or they are only one-third of the figures which have been hitherto used?

A. That is substantially correct, yes.

Q. And that the present figures for coliform count that you are now or you have testified concerning are to the same degree lower than those that appeared in the PHS 47 to which you have referred?

A. Would you repeat the question, please? I didn't get that in full.

Q. I think I withdraw the question because I believe I am being repetitious. What factors could account for this very substantial reduction? And if you object to "very substantial" I will accept any amendment you wish.

A. Well, I would say that there are a number of possible explanations for the difference between the two sets of figures. The dam at Gavins Point and if I am correct I believe possibly others farther upstream, were not in place at that time and I believe the absence of the dam permitted more bacterial contamination from upstream to arrive in the river both at Yankton, probably, and also above Sioux City. However, I should explain with respect to the station above Sioux City that in 1950 that station was located farther downstream.

Q. At the combination bridge?

A. At the combination bridge and the station that we used and therefore those two sets of data I do not think are necessarily comparable.

Q. Right. What other factors would you believe could account for the differences?

A. This gets more or less into theory, I must say, but it is my best opinion that another factor was the turbidity of the river at that time. The river was quite highly turbid in relation to turbidities found in most of the streams that I have dealt with in the past, turbidities in the range of 2,500 to 5,000, which justifies the name the muddy Missouri. And it has been found in certain laboratory studies that bacteria multiply to a greater extent in the presence of surface areas which apparently either tend to--solid surface areas which tend either to absorb and concentrate food and thus make it more readily available to the bacteria or else provide a surface for the bacteria to attach to and multiply more rapidly. Now, this gets into a field of bacteriology in which I am not too well qualified, but my best opinion is that that probably had some effect on the high levels of coliform below Sioux City at that time.

Q. Yes. Well, the tests that you made in '58 at all points below Sioux City were considerably lower than the old set of figures that we have been using and you believe that one factor--and I understand you say this is theoretical--one factor which influenced that was the lessened turbidity of the river because of the installation of the dam?

A. It is my opinion that this was one factor, yes.

Q. Now, I suppose we could assume, Mr. Kittrell, that if between the times the two sets of tests were made the stockyards industries had gone over to dry cleaning in their pens, and so forth, and had ceased to put or to dump into the river animal manure, that in and of itself would account for part of the lessening of the coliform bacteria, is that true, sir?

A. Under the conditions that you describe I would say that it probably would account for some reductions.

Q. Are you advised, sir, as to whether or not that has been done prior to the '58 tests?

A. I can not answer that with certainty.

Q. You mentioned this morning a number of tons of grease per day being discharged from the Floyd. Your source of information for that came from the engineering report presented to the city in '57, is that correct?

A. That is correct.

Q. Do you have any information available to you now or did you in '58 as to whether some of the dumping of the grease into the Floyd had been stopped?

A. No, I do not have that information.

Q. You do not have that. Are you advised at all concerning the operation at the mouth of the Floyd whereby an individual contractor under license from the city is removing grease from the river?

A. On occasion I have seen men removing grease from the Floyd into trucks. I do not know what their association was.

Q. Was that true in 1958?

A. Yes.

Q. I am not advised, Mr. Kittrell, as to whether or not the presence of the animal fats in the river has any bearing on or relation to the coliform bacteria present in the river. Does it?

A. I do not know.

Q. Concerning, again, the tests you made in the tributaries, as far as the Boyer River is concerned its contribution figured after it got into the river, Missouri River, was two hundred sixty per one hundred milliliters, that was your testimony this morning?

A. The average of the days that we sampled, yes.

Q. How far above the Florence River intake does the Boyer empty in river miles?

A. It is about eight and a half miles, according to my figures here.

Q. And do you have any information, sir, as to how far above the mouth of the Boyer River the City of Denison lies?

A. Again referring to WPS 47, I believe it is a distance of about 82 miles, if my memory serves me.

Q. (By Mr. Samson.) How many miles, Mr. Kittrell?

A. About 82.

MR. SAMSON: Thank you.

Q. (By Mr. Davis.) Did you have any information at the time you made your tests as to whether or not the packing plant at Denison was then in operation?

A. No.

Q. Did you then or do you now have any information concerning the amount of the expected kill, and so forth, in this packing plant?

MR. EDELMAN: Mr. Chairman, I do not recall any evidence has been put into the evidence establishing the existence of such a packing plant. We are willing to take Mr. Davis's word that it exists, but no testimony has been adduced on that point up to now, if my recollection is correct, unless Mr. Davis himself has mentioned it in previous cross-examination.

CHAIRMAN WILSON: I don't recall that there was any on direct examination.

Q. (By Mr. Davis.) Your figure was right, Mr. Kittrell.

A. Thank you.

MR. SAMSON: Mr. Davis, pardon me for interrupting you, but 82 miles, is that from the mouth of this Boyer Creek up to Denison or is that--

MR. DAVIS: From the Missouri.

A. Eighty-two miles from the Missouri to Denison by the way the Boyer flows, yes.

MR. SAMSON: Thank you.

Q. (By Mr. Davis.) Did you note when your tests were made in December of '58 whether or not there were any animal fats or grease or hair or anything like that in the Boyer?

A. We made no tests in December '58.

Q. Well, I beg your pardon. I misstated the date. In August of '58.

A. Would you repeat the question? And I will concentrate.

Q. When the tests were made in August of '58 in this tributary, the Boyer, did you observe any solids, such as fat, and so forth?

A. I was not present when samples were collected on the Boyer.

Q. You were present yesterday afternoon when the gentleman from Onawa who is with the United States Engineers testified and heard his testimony concerning the fact that there are 20 to 30 drainage ditches along the river? That is Mr. Walton's testimony, the man from Iowa.

A. I recall his testimony. I did not recall the particular number of ditches.

Q. I believe he said numerous and then later said 20 to 30. But I would take it that in your examination you did not make any of these coliform counts at these other smaller drainage ditches other than the one that you mentioned?

A. Only those that we have named and that appear on the chart.

Q. Insofar as the settling basin at the Sioux City Air Base is concerned, that, of course, is not designed for that purpose, is it?

A. No.

Q. In times of high water when they fish, and the fishermen we heard this morning go in, the sewage would come out, right?

A. That is correct.

Q. In your study which resulted in these exhibits that you have presented here, did you take into account at all what surface runoff might have been through the other--I mean through other means other than the formal tributaries into the river?

A. I made no estimate of coliforms from surface runoff from land areas directly adjacent to the Missouri River.

Q. And you have no information as to the livestock population nor the amount of feeding, and so forth, that is done along the river?

A. No.

Q. I would assume that in times of high water both the effluent from the air base and this runoff, particularly in a period of heavy rainfall, could become factors which would affect the eventual coliform down here at Florence, could they not?

A. They could to a limited extent.

Q. Drawing your attention to Government's Exhibit 24, entitled "Bacterial contamination Missouri River Sioux City to Omaha", as I interpreted your testimony this morning concerning this projected dotted line (indicating), you feel that that will be the change that will be occasioned by Blair activating its sewage disposal plant, is that correct, sir?

A. This is the best method that I know of to approximate that change.

Q. The green portion of that Exhibit 24, the light green portion, that you have drawn across it at the 5,000 mark represents the objective for raw water for water supply, does it not?

A. With the type of complete treatment normally provided, yes, I mean in general practice.

Q. General practice. Who established that objective?

A. The Missouri Basin Health Council specified that the recommended objective of the Public Health Service adopted in 19--recommended in 1946 should be used.

Q. In connection with that recommendation of the Public Health Service, was that based on Dr. Streeter's works that we discussed briefly yesterday?

A. I am not sure of the history of the development of those recommendations. I was not with the Public Health Service at that time. The five thousand per hundred milliliter limit is the same as--

Q. Did you hear the discussion yesterday where I thought it was developed that at the time that five thousand recommendation was made coliform count or in making the coliform count the Phelps Index was used, whereas in the more probable number system which is now used it would be increased, doubled, perhaps, or more than that? You heard that discussion?

A. Yes.

Q. Would you care to comment on it?

A. Well, I think there are two matters pertinent to this, one being the portion of the Ohio River Valley Water Sanitation Commission bacterial quality objectives that were read yesterday by Mr. Edelman in which Mr. Streeter specified that or he recommended to the Commission and it was adopted by the Commission that the five thousand per hundred milliliter objective should apply to Ohio River water and that the test on which the monthly average was to be based would be the five-tube MPN method.

Q. However--

A. That is one--

Q. Excuse me. Go ahead, sir.

A. The other factor is that the Public Health Service's 1946 recommendations say that the monthly average of five thousand shall be based on either the indicated number or the most probable number. That bulletin makes no distinction between the two methods with relation to the five thousand per hundred.

Q. However, in 1923 when this objective first came into use and which has been cited in numerous instances, as we both know, if the more probable number system had been used the minimum objective would have been in the neighborhood of 11,500 under the more probable number system, would it not?

MR. EDELMAN: Mr. Chairman, may I interpose an objection to this line of questioning? I don't see what significance counsel's interpretation or translation of most probable number into Phelps Index has here. The standard is stated in terms of most probable number. If counsel wants to translate it to Phelps Index or any other kind of index and come up with a different figure, and the Board is willing to have that done, I have no objection. But I submit it is not relevant to the standard which is based on most probable number.

CHAIRMAN WILSON: Objection overruled. Take it subject to the objection.

A. Could I have the question read again, please?

(Question read.)

A. I don't think that we can say this with certainty. The translation of MPN numbers into index numbers is not so direct a matter as the simple multiplication by the factor of two point three, I believe the one that you used.

Q. (By Mr. Davis.) I used two point three.

A. Yes. It is not quite that simple. It requires a knowledge of the actual results of each individual test and these must be considered in making that translation. I will volunteer this information, however, that I talked to Mr. Streeter himself and asked him this same question and he said that he did not consider the difference by the two methods significant. This was stated to me by Mr. Streeter.

Q. You will concede, however, that since that standard was first established in 1923 there has been considerable improvement in water treatment processes?

A. Yes.

Q. During what years were you with the TVA, Mr. Kittrell?

A. Approximately 1942 through 1951.

Q. Are you familiar with their requirements for untreated water that is to be processed and used for drinking water?

A. In application to what situation, Mr. Davis?

Q. Well, that is to raw water supply for use after processing as drinking water.

A. To the best of my knowledge, the TVA has no requirements. Maybe I should clarify that. The TVA does not have any authority over water supplies in the Tennessee Valley except as they are their own supplies.

Q. Well, as far as their own supplies are concerned, do they have a Class 3 classification of water wherein the objective is 20,000 coliform count?

A. I am sorry, I do not recall that particular objective. If it is so stated in--

Q. Which, of course, involves a certain type of treatment, possibly--

A. Yes, as I recall it those were based. I didn't develop those myself, Mr. Davis. They were developed by another engineer and I do not have those in mind at the moment. My impression is that they pretty well followed the Streeter objectives.

Q. Referring back again to the matter of the minimum or the maximum, whatever we say, at least the objective of five thousand that you show on your Exhibit 24, I am wondering if you would agree that these standards could be safely raised and should no longer be applicable to modern, well-operated water plants?

A. I accept Dr. Walton's conclusion that a modern, well-operated, efficient water treatment plant can remove more than five thousand per hundred milliliters.

Q. But I take it you then don't accept the other conclusion that the recommendation at the 5,000 level is no longer applicable or no longer should be applicable?

A. I find it personally rather hard to accept this.

Q. I would like to call your attention, Mr. Kittrell, to page 741 of the 1956 literature review in a publication called "The Sewage and Industrial Wastes of the Journal of the Federation of Sewage and Industrial Wastes Association" wherein appears a portion of a committee report, among the members of the committee being F. W. Kittrell, which I assume to be you.

A. That is correct.

Q. And in this report there appears this statement concerning Dr. Walton's reports: "Walton presented data showing that adequately designed and well-operated water treatment plants can treat raw waters heavily laden with coliform organisms to produce effluents conforming to the bacterial requirements of the United States Public Health Service drinking water standards. These results indicate that current United States Public Health Service recommendations with respect to the density of coliform organisms in raw water acceptable for treatment are no longer applicable in modern, well-operated plants." I would take it from this quotation that I have read to you that insofar as your committee was concerned that made this report there was no dissent from that statement?

A. I should point out as a member of that committee that that is not a critical review of the literature. That is merely a review of the literature as it exists. And the committee does not imply any agreement or disagreement with any of the material incorporated in the annual report.

Q. Would there be available to me anywhere any literature showing your dissent from that in these professional publications?

A. No, I have not expressed such a dissent in print, no.

MR. EDELMAN: Mr. Chairman, we are moving rather far afield. Mr. Kittrell has not testified about the effective operation of water treatment plants and Mr. Davis has reached a series of questions that seems to be directed to that. I am sure I don't understand the purpose of examining this witness on that point when Mr. Walton was on the stand for a considerable time yesterday on that subject.

CHAIRMAN WILSON: I think in view of the witness's testimony on direct examination this is proper cross-examination and if you are making an objection it will be received subject to the objection.

MR. DAVIS: May I have just a moment, sir? I am through with that line of questions.

Q. (By Mr. Davis.) Mr. Kittrell, you closed your testimony with the statement that appropriate treatment would reduce the coliform concentration and made several similar comments concerning that. Would you care to define what you mean by appropriate treatment?

A. Well, I was referring in general, that was a general statement, I was referring in general to--

CHAIRMAN WILSON: Will you speak up, please, Mr. Kittrell.

A. I was referring in general to modern sewage treatment methods.

Q. (By Mr. Davis.) Well, yes, but there are different kinds. For example, would primary treatment have any considerable effect in reducing the coliform concentration.

A. I believe it would reduce the coliform concentration in the river

Q. (By Mr. Samson.) In the what, Mr. Kittrell?

A. In the river.

Q. (By Mr. Davis.) Would that be appreciably, Mr. Kittrell, or not?

A. This is a rather complex question to answer simply. Would you state what you mean by appreciably?

Q. Yes, if you will tell me what you meant by appropriate.

A. Well, when I said appropriate I was thinking of such methods as primary treatment, biological treatment, chemical precipitation, the various--I was thinking of the various generally accepted sewage treatment methods.

Q. All right. Now, in all of our proceedings here there has been involved primary treatment, which I understand would remove 30 percent of the solids, or something like that. But would that--

CHAIRMAN WILSON: Just a minute, please. The Secretary wants to tell me something.

(Off the record.)

CHAIRMAN WILSON: Counsel for both parties, the word has come in that the deputy clerk wishes to leave at about 4:30, so if there are any witnesses to be called after the present witness, will you kindly arrange to have them come forward and be sworn.

MR. EDELMAN: Mr. Chairman, I think there is one Government witness who may be reached this afternoon. Mr. Clark, you were sworn this morning, weren't you?

MR. CLARK: Yes.

MR. EDELMAN: Mr. Ristau, would you come up and be sworn?

CHAIRMAN WILSON: You had better have everyone sworn who is likely to be called before we close at 6 o'clock.

MR. EDELMAN: That is all we have to be sworn that we anticipate calling, Mr. Chairman.

MR. EDELMAN: Mr. Chairman, may I have the last question read back to me?

CHAIRMAN WILSON: Yes, let's have the last question read.

(Question read as follows: "In all of our proceedings here there has been involved primary treatment, which I understand would remove 30 percent of the solids, or something like that. But would that--")

MR. EDELMAN: Mr. Chairman--

MR. DAVIS: I withdraw the question.

Q. (By Mr. Davis.) The objective that has been announced for us, and I believe in your conferences, was primary treatment, which I understand means removing--

MR. STEIN: We object.

Q. (By Mr. Davis.) --floatable and settleable solids in treatment. Now, I am asking you how much that type of treatment, in your opinion, would reduce the coliform concentration in the sewage that was processed.

MR. STEIN: We have no objection to the question, though it certainly goes beyond the scope of the direct, but we would like to correct the record. We have put in several exhibits, transcript of the conference, a summary of the conference. In no place does it indicate that the Government or the conferees or anyone else ever proposed primary treatment.

CHAIRMAN WILSON: Well, to the extent that counsel in asking that question is assuming something that isn't in evidence here, it might be a hypothetical question and, hence, subject to the submission of further proof to show that it is material and relevant.

MR. STEIN: We are not objecting to the question. We don't think it adds anything to the question if counsel would just go ahead with his question without the preface.

CHAIRMAN WILSON: Well, if counsel wants to submit the question in the form that he stated it, I will permit the witness to answer it.

MR. DAVIS: I am not very proud of the form.

Q. (By Mr. Davis.) I would like to ask you this, Mr. Kittrell. How much would primary treatment of Sioux City's sewage reduce the coliform concentration, if you know?

A. Well, I could not answer that specifically without knowing the type and some detail of the primary treatment proposed. If you would like a general answer--

Q. Just include settling processes.

A. Well, I accept the figures, and use them in the work that I do, published in Fair and Imhoff's book, or Imhoff and Fair's book, "Sewage Treatment", that primary treatment removes coliform organisms over a range of 25 to 75 percent.

Q. From 25 to 75 percent?

A. Yes.

Q. Have you had any actual experience with that particular method from your own observation, or have you had any observations to indicate that that is correct?

A. We did take--we took some samples from a primary treatment plant close to Cincinnati, they were taken under my general supervision.

Q. Right.

A. And they showed a reduction of about 30 percent in coliform organisms.

Q. Thank you.

A. Now, this does not necessarily apply to a range of plants. I mean this was one plant. This is the only personal experience I have had with actually sampling a sewage treatment plant for this purpose, a primary sewage treatment plant for this purpose.

Q. Mr. Kittrell, just two other questions that I have overlooked in reviewing your testimony. As far as the contribution of South Sioux City by way of sewage to the Missouri River, was any measurement made of that at their outflow?

A. No, not by me.

Q. What figures or how did you arrive at that?

A. I obtained that figure from the Public Health Service official inventory of water and sewage treatment--of water--I mean of sewage and industrial waste disposal facilities.

Q. Which indicates that the population was what?

A. I used the sewered population only, which is 3,500.

Q. If there should be testimony here that their population is 7,000 at this time, I would assume that we would have to double your figures as to their contribution or is it that simple?

A. Only if all of those are connected to the sewage system, if the entire population is connected to the sewage system.

Q. I think you mean if their toilets are connected to the sewer system?

A. That is right. That is correct.

Q. Of the stations that you measured at below Sioux City--I am sure that is probably on one of your exhibits--what was the closest one with reference to South Sioux City's point of discharge? I will put it this way, Mr. Kittrell. You gave the figures of 58,000 for the first station below Sioux City. Where was that located with reference to the Floyd River?

A. That was two and six tenths miles below the mouth of the Floyd River.

Q. Where with reference to that station, if you know, does the South Sioux City sewer discharge?

A. I do not have personal knowledge as to exactly where the South Sioux City discharge is.

Q. The second station below Sioux City, you gave the count as 35,000. Where was that located?

A. That is 13.3 miles below the mouth of the Floyd River.

Q. It is possible, then, Mr. Kittrell, that the first station below Sioux City where you took your tests would also have been below the outfall from South Sioux City?

A. I believe it to be, but I can not say from personal--with certainty from personal knowledge.

Q. Your tests made in August of '58 in that week period, I mean were made then, do you have any personal knowledge as to whether or not during that week the river was flowing over the informal settling lagoon at the Sioux City Air Base?

A. I saw it on the same date that I previously testified that I visited the waterfront here and it was not overflowing the tops of the pilings at that time.

Q. What made me ask that is solely the fisherman this morning; I thought one of them said they made their last trip in there in August of '58. That is why I asked you about it. Do you have any actual positive knowledge?

A. My best recollection of date, which I do not have of record here, is that it was on or about August 28th that I was there and at that time the water was not overflowing the tops of the pilings in that enclosed area.

Q. Nor running out from that lagoon at the Air Base?

A. I can not say what was going on underneath the surface of the water. I could not tell.

MR. DAVIS: I see. I have no more questions, Mr. Chairman.

CHAIRMAN WILSON: Are you going to have much redirect examination?

MR. EDELMAN: I think about five minutes, Mr. Chairman.

CHAIRMAN WILSON: Well, then, we want to take a recess before long as long as we are going to stay until 6 o'clock. If you think you can finish up with Mr. Kittrell, go ahead.

MR. EDELMAN: As a result of the redirect there may be recross, so I have no objection to taking a recess now.

CHAIRMAN WILSON: We will take a recess for 10 minutes.

(RECESS)

CHAIRMAN WILSON: The hearing will come to order. You may proceed, counsel.

REDIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Kittrell, in your testimony on Dr. Walton's report I am not quite sure of the purport of your answer. As I understood it, you indicated that you agreed with that portion of his conclusion which indicated that modern water treatment plants can treat water which is above the Public Health standard or Public Health objective. Did I understand you to say that you disagreed with his conclusion that the 5,000 MPN per hundred milliliters is too low or that an upward revision is indicated?

A. I said that I personally disagreed with that, yes.

Q. In other words, in your opinion, a revision of that standard is not indicated on the basis of his paper?

A. That is correct.

Q. Mr. Kittrell, in connection with the velocity of the river, is a flow velocity between Sioux City and Omaha indicating that it takes 30 to 36 hours for water to travel that distance consistent with your die-away curve on the Government Exhibit 24?

A. This is not plotted in terms of time of water travel. This is plotted in terms of miles and I am not sure that I understand the question.

Q. Well, the question is, if it took 36 hours for contamination from Sioux City to reach Omaha, is that consistent with your findings?

A. Based on curves developed in other rivers, if the flow time had been 36 hours this is about the percentage of the 50,000 per hundred milliliters that would have been left at around 36 hours, based on experience on other streams.

Q. Did the study that you conducted of the tributaries of the Missouri include all tributaries, ditches, and streams with a measurable flow?

A. Yes.

Q. In other words, the study omitted streams which did not have a measurable flow?

A. Yes.

Q. Based on your experience do you have any view as to whether there would be a significant coliform contribution to the Missouri River from land that is merely adjacent to it?

A. Under the circumstances of rainfall that we had during that week I do not believe that the contribution would be significant.

Q. Do you have any information as to the portion of the watershed or land that drains into the Missouri River that is reflected in the measurements that you took of the tributaries?

A. Yes. Of the approximately 40,000 square miles of drainage area tributary to the Missouri between Gavins Point Dam and Omaha, the tributary streams that we sampled drained about 90 percent of that total area.

Q. Turning now to the Phelps Index, can you tell me whether that index is now in general use as a standard for the bacteriological examination of water?

A. My opinion is that it is not very frequently used in modern--in present-day practice.

Q. You testified earlier with respect to the effects to be expected from sewage treatment, that a study was directed under your direction of a plant I think it was at Cincinnati, is that correct?

A. Near Cincinnati.

Q. Near Cincinnati. Did the sewage of that plant have any special problems.

A. I did not visit the plant personally and I am not aware of any particular problems that that plant had.

Q. As I recall, you said a range between 25 percent and 75 percent removal of coliform organisms. Is that range dependent upon a number of factors?

A. Yes.

Q. Can you tell us what those factors might be?

A. Well, there would be a variety of factors, under which would be detention time in the sedimentation tank; the frequency of removal of sludge solids would enter into the picture. I would assume that the frequency of grease and scum removal would have some effect on the removal. The distribution of water in flowing through the tank would have some effect.

Q. In other words, then, it would be quite--it is possible to design a plant which would remove 75 percent of the coliform organisms or which would be designed for that purpose?

A. It would be possible, yes.

MR. EDELMAN: That is all we have, Mr. Chairman.

CHAIRMAN WILSON: Any cross-examination?

MR. DAVIS: No more questions from the City.

CHAIRMAN WILSON: Do the members of the Board have any questions?

MR. KURYLO: I have one, sir.

Q. (By Mr. Kurylo.) On cross-examination data was brought out on the possibility that the population of South Sioux City may be 7,000 rather than the 3,500 which you indicated was used as a basis for your study. Assuming that the sewer population actually is 7,000, would that have any significant effect on the findings of your study as reflected in Government's Exhibit 24?

A. I could say that I could give you a theoretical MPN that the additional 3,500 might add to the river, if that would answer your question satisfactorily.

MR. SAMSON: Let the record show that we now for the first time have a slide rule in operation.

CHAIRMAN WILSON: I think the use of one of those is an engineering privilege.

A. I would say it would add about 2,000 to the 50,000 that we found.

Q. (By Mr. Kurylo.) In your opinion would that be a significant amount?

A. Well, the definition of significant is rather difficult to answer, I mean knowing what you are referring to, but--

Q. Would a 4 percent increase be a significant amount?

A. Well, I mean significant with respect to what?

Q. With respect to the bacterial contamination information which you developed.

A. I do not feel that it would seriously alter my conclusions regarding the effect of the waste discharge on the river and on the uses of the water.

Q. One more question, sir. As I understand it, in the development of this study you indicated on direct examination that you used the standard set forth in a publication entitled "Standard Methods for the Examination of Water Sewage and Industrial Wastes"?

A. That is correct.

Q. Is that the publication which is issued jointly by the American Public Health Association, the American Water Works Association, and the Federation of Sewage and Industrial Wastes Association?

A. Yes.

Q. Is that commonly known in your specialized field as the bible for these kinds of studies?

A. That is correct.

MR. KURYLO: No further questions.

CHAIRMAN WILSON: Mr. Metzler had a question.

Q. (By Mr. Metzler.) I have a series of two or three questions, Mr. Kittrell, that have to do with the testimony that you have given and some of the questions which have been asked about coliform loading. Would you tell us what agency usually is responsible for supervising the safety of treated water supplies in any particular state?

A. Generally the state health department.

Q. The testimony has indicated that in the Missouri River Basin the state health agencies, through the state health officers, formed the Missouri Basin Health Council and that this Council adopted the 5,000 limit in 1953, I believe. My second question is, on the basis of your opinion, your professional judgment, do you think these state health agencies have at their disposal satisfactory professional and technical advice to adopt a meaningful standard?

A. Yes.

Q. One other question. If there should be only 30 percent removal in bacteria accomplished through primary treatment at Sioux City, is it possible that a higher degree of sewage treatment than primary might be needed in order to reduce the loading limits which have been recommended at Omaha, reduce the coliform loading in the raw water to the limits recommended for Omaha?

A. I am not quite sure I follow your question all the way. May I have the lady read it, please?

(Question read.)

A. It is a rather complex thing to say just what a reduction in coli will do in relation to the death rate curve, and so on, but my opinion is that -- Well, let's see, the best I could do in the way of making an estimate would be to assume that 30 percent reduction of the coli at Sioux City would result in approximately 30 percent reduction of that 85 percent of the bacteria at Omaha which I have estimated originated in Sioux City. Now, I have to go to my slide rule again if you want a quantitative answer.

MR. METZLER: Thank you. This answers it for me.

Q. (By Chairman Wilson.) Do I understand, Mr. Kittrell, then, in answer to that question, that you think primary treatment would or would not be sufficient?

A. Well, if it removed only--if primary treatment removed only 30 percent of the bacteria, I would question seriously whether that would be adequate to bring the coliform at Omaha down to 5,000 per hundred. Of course there is a possibility that primary treatment may remove much more than 30 percent.

Q. Well, are you able to state what improvement in primary treatment or what additional other form of treatment would be required to accomplish a result that you would consider satisfactory?

A. I have not made any such calculations. I could make them. I mean I could make some computations which might indicate. I have not made such computations and it would take a little while to do this. I will be glad to do it if you want the answer later.

Q. Well, then, we understand from your testimony now that something in addition to ordinary primary treatment might be required to accomplish a satisfactory result?

A. It might be, in my opinion, yes.

CHAIRMAN WILSON: That is all. Any other questions?

Q. (By Mr. Samson.) Mr. Kittrell, just a couple of questions here. In your investigation in August of 1958 did you determine whether there were any other organisms present in the water between Yankton and Omaha, such as, oh the streptos or the enterococcuses?

A. No, we did not take any determinations other than the most probable numbers of coliform organisms.

Q. Well, from your own personal knowledge, with the facts and situations as they existed as you found them, would you be able to say whether or not it is highly probable or possible that such other organisms would be present, I mean pathogenic organisms?

A. I would say it was quite probable that they were present.

Q. And would you give the Board the benefit of the type of organisms that would be present generally?

A. They would be those that cause typhoid fever, paratyphoid fever--these are possibilities.

Q. That is what my question was, too, Mr. Kittrell.

A. Yes. Typhoid fever, paratyphoid fever, diarrhea, dysentery. There might be amoeba which can cause dysentery, though I understand this is rather rare in this section of the country. There could be any number--any of a great number of viruses, some of which have been shown to be transmitted by water.

MR. SAMSON: I see. Thank you. That answers my question. Thank you, sir.

CHAIRMAN WILSON: Any other questions?

Q. (By Dr. Van Heuvelen.) I have a question. Your results are all during the month of August. Now, given the same sewage loading, what would you have anticipated would happen during the month of January under heavy ice cover? Would conditions have been better, worse, or unchanged, with regard to reduction in coliform bacteria?

A. Are you referring to what I would expect to happen with the reduced winter flows also or do you mean with the same flow? You see the flows were reduced in--

Q. With what would ordinarily occur on the Missouri River, which would be a reduced flow and heavy ice cover. Would that change your result appreciably and, if so, in what direction?

A. Well, I would actually expect under the conditions as I know them on the Missouri River that the coliform organisms probably would be higher in the winter than in the summer. However, the water plant records do not show this to be the case and without a study of the river during the winter I can assign no reason to that discrepancy.

Q. Have there been any studies made, to your knowledge, in that regard?

A. The 1950 studies, which are reported in WPS 47, did extend through the winter and the results there indicated an extremely rapid death rate during the winter, far greater than I had known of in any other stream during the winter, under winter conditions. And I had no explanation for that.

Q. But your selection of the month of August was not to select either the best or the worst, the most favorable or the least favorable month?

A. That is correct.

Q. It is a representative month, you might say?

A. Yes.

Q. (By Mr. Kurylo.) I have one question as a result of the questions and answers just given here. Would an increase or decrease in the operations of the packing houses in this area, which might well occur during January, affect the coliform count in Omaha?

A. If the packing plant wastes decreased during--you say January?--I would expect some reduction in proportion to the reduction in the packing plant operations, percentagewise, let's say, but I would not--my best opinion is that that would not affect the death rate itself, if you get the distinction as to what I am getting at there.

CHAIRMAN WILSON: Any other questions?

That is all.

MR. DAVIS: With reference to that last question, you have no information, Mr. Kittrell, that the amount of the kill is less in January, do you, in your studies? In other words, this question you asked is purely hypothetical, is it?

MR. KURYLO: Yes.

MR. DAVIS: That is all right, then.

MR. KURYLO: It was a purely hypothetical question. In answer to an earlier question he indicated that he couldn't--he didn't quite understand why there would be a drop and I raised the hypothetical question assuming a certain thing did happen would it affect conditions down there. He gave us an answer.

CHAIRMAN WILSON: Any other questions?

MR. POOLE: Let me ask him one now.

Q. (By Mr. Poole.) Do you have any idea, Mr. Kittrell, what is the difference in time of travel between winter flows and summer flows? You said, I believe, that during your August flows that some records showed about two days and in your opinion this is a little high, maybe 36 hours.

A. I don't know the exact figure, but I would guess it--the information is available in this same report that I have referred to so often. But I don't think it would be more than 12 hours additional time of travel under winter flow conditions, something like this. It might be a few hours more or a few hours less than 12, but something like this.

Q. That in itself doesn't seem to be enough to account for the drop in population under winter conditions?

A. No. And the peculiar thing is that in the winter the peak of the coliform curve occurs farther downstream than it does in the summer, and so this again is puzzling.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: I am confused, Mr. Chairman. If I may ask one more question.

RECROSS-EXAMINATION

BY MR. DAVIS:

Q. In answering Mr. Samson's question you mentioned that there would be typhoid germs, paratyphoid, and those causing dysentery. Are they ordinarily included in these coliform groups or not, sir?

A. It is my understanding that they normally show up as part of the coliform group.

Q. I see. So, therefore, in the water treatment processes they would be removed, too, isn't that correct?

A. They would be removed essentially the same as the coliform organisms, yes.

Q. Yes.

A. That is, the bacteria would.

Q. Right.

A. I am not in that statement referring to the virus and to the amoeba.

CHAIRMAN WILSON: Any more questions?

Q. (By Mr. Samson.) This virus question, is that quite an involved question, Mr. Kittrell? It is, isn't it?

A. It is a relatively new field so far as scientific investigation with relation to water is concerned and I am certainly not qualified to discuss it to any great extent.

Q. Well, let me ask you this question. Is it your opinion that some of the viruses do associate with and are found in the waters that carry a relatively high count here as far as coliforms are concerned?

A. The literature has numerous examples of viruses having been detected in sewage. The detection of virus in streams, I am not aware at the moment of a report of such isolation of virus in streams. It might have been done. I am not aware of it. It does not mean it is not there, but it is so much more dilute that it is difficult to isolate with present-day methods.

Q. But there is some authority to the proposition that where you find a high count you also would find some virus, in all probability?

A. It is probable, yes.

MR. SAMSON: That is all. Thank you.

CHAIRMAN WILSON: Any other questions?

That is all, Mr. Kittrell.

(Witness excused.)

MR. EDELMAN: Mr. Harold Clark.

HAROLD FRANCIS CLARK,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Clark, I remind you you were sworn in earlier and that the testimony you are about to give is still subject to that oath. Will you identify yourself to the reporter?

A. Harold Francis Clark, 251 Boving Road, Lancaster, Ohio.

Q. Mr. Clark, by whom are you employed?

A. I am employed by the Robert A. Taft Sanitary Engineering Center, a department of the U. S. Public Health Service, Cincinnati, Ohio.

Q. May I ask that you speak up?

CHAIRMAN WILSON: Yes, will you just speak up and realize that you are talking to the farthest people in the room.

Q. (By Mr. Edelman.) What position do you hold there, Mr. Clark?

A. I am in charge of water quality studies, water quality and water pollution research, of the Center.

Q. You are employed as a bacteriologist, are you not?

A. That is right.

Q. What degrees do you hold, Mr. Clark, in this field?

A. I hold a Bachelor's degree, an A.B. degree, from the University of Kansas, and a Master of Arts degree from the University of Kansas, with majors in bacteriology and chemistry.

Q. How long have you been active in this field, Mr. Clark?

A. I have been active in this field for approximately 25 years.

Q. Can you tell us something of your experience?

A. For the past 12 or 13 years I have been employed at the Robert A. Taft Sanitary Engineering Center, for the past 10 years in my present capacity. Previous to that as a bacteriologist and chemist on a septic tank evaluation. Before that I spent four years with the Army as a bacteriologist. Previous to that I worked for Pillsbury Flour Mills as their chief bacteriologist, and for a while with the National Institute of Health at Washington,D.C. Previous to that taught bacteriology at the University of Kansas.

Q. Now, in the course of carrying out your responsibility as the bacteriologist in charge of water pollution studies and water quality, have you had occasion to study the pollution problem at, I think it is, the Florence pumping station, which is the water intake of the Omaha Metropolitan Utilities District?

A. Yes, sir.

Q. Can you tell us when those studies were made?

A. One of those studies was made on a daily basis from February 1956 through February 1957. In that study they ran the MPN five-tube three decimal dilution on the raw water at Omaha. They also ran an immediate membrane filter coliform test at Omaha, and filtered a duplicate sample by the delayed incubation membrane filter test and mailed it to me in Cincinnati. I ran the delayed incubation membrane filter test independently and weekly received their reports of what they got on the immediate incubation MF test and the MPN test and brought those results together in a report. I also made an additional study of a week each at four different parts of the year for special typing of the coliforms present in the Omaha raw water supply, and furthermore I made one additional study of the--

MR. SAMSON: Dr. Clark, would you slow up just a little bit?

THE WITNESS: Yes, sir.

MR. SAMSON: Thank you. Go ahead.

A. I examined one additional sample on January 16, 1959. That sample, in place of being for coliforms, was to find the density of the fecal streptococci that were present in the raw water of the Omaha intake, that is your Florence filtration plant.

Q. (By Mr. Edelman.) Mr. Clark, with respect to the first study you mentioned, the one that was conducted in 1956 through 1957, will you tell us what your evaluation of the data showed?

A. Yes, sir. My evaluation of the data showed this: It showed that coliforms existed in densities approximately those that have been testified to heretofore. I would like to discuss specifically the four weekly samples that were examined.

One sample was a weekly sample for January 1959 --pardon me--1957. It contained a coliform MPN average for the week of 3300 coliforms by the MPN procedure. It was a little higher by the MF procedures, but I can't recall how much higher. Of those coliforms we picked 200 strains of the coliforms from the solid membrane filter media that were isolated coliforms. Those were typed by the standard IMViC typing procedure. Now, according to the standard methods they have said that tentatively they consider the organisms that by that typing procedure have a plus plus minus minus IMViC type or a minus plus minus minus IMViC type to be common, the commonly considered source is fecal source.

We also did an additional test which was called a boric acid lactose broth test for fecal coliforms. Also a modified EC test, which we have recently developed and published from the Taft Sanitary Engineering Center as a test for fecal coliforms.

All right. According to the IMViC typing in January, 62 percent of the coliforms present were of the fecal source. By the BALB test and the EC test the figures ran 73 percent. In April the MPN had gone up to 14,000 per hundred milliliters. We found 44 percent of those to be fecal types by the IMViC and 42 percent of them to be fecal types by the latter two tests.

In June we found 9,500 the MPN. 33 percent of those were fecal types by IMViCs and 35 percent by the latter two tests.

In October the MPN had risen to 11,000. 17 percent of those were fecal types by the IMViC test and 20 percent were fecal types by the latter two tests.

Q. (By Mr. Poole.) I am sorry. I missed the April.

A. The April? The MPN was 14,000. Fecal types by IMViCs 44 percent. By the other two tests 42 percent, sir.

Q. These are all 1957 dates, I take it?

A. That was a study that ran from February 1956 through February 1957. The only '57 date would be the January one. The rest of them are in '56.

MR. POOLE: Thank you.

Q. (By Mr. Edelman.) You mentioned that you ran a special study in January of 1959, as I recall?

A. Yes, sir.

Q. Can you tell us what the date on that study revealed?

A. Yes, sir. In that study we found we had an MPN of 4,900 for that sample, coliform MPN. The fecal streptococcus MPN was 2,000. The breakdown of the strains found in that sample were as follows: The streptococcus faecalis 70 percent.

Q. (By Mr. Samson.) As you go along on these different types of Strep. would you be so kind as to tell us what diseases they are associated with, if possible?

A. Would you delay that question until after I finish, please?

MR. SAMSON: I am sorry. Go right ahead. I am sorry.

A. Thank you. Streptococcus faecalis 70 percent. Streptococcus bovis types 20 percent. And I would like to call your attention to the streptococcus acidominimus, 2 percent, and the mitis-salivarius species, none.

Now, as an aid to interpretation of that test, it may sound a little funny to mention mitis-salivarius and none, but normally in fresh human feces in an adequate number of cases studied the average density will run 19 percent. However, it has a very rapid die-off, usually in a few hours or 24 hours at the most. And I mentioned that because in our normal human fecal distributions we find 19 percent present and we found none in the sample at Omaha, which would indicate that the fecal pollution perhaps was at least 12 hours remote, in my own opinion.

Now, as to humans, 77 percent of the streptococcus faecalis are found in human feces, but if you go to cows or pigs that percentage distribution runs from the neighborhood of 5 to 10 percent and usually those are a little atypical. On the other hand, in considering human types of feces, the bovis types are never present in human feces, at least so far as my experience goes. And my experience consists of the examination of 2,500 strains of streptococci from 25 different normal adult humans. However, 61 percent of the fecal streptococci from cows, approximately that, and 32 percent of those from pigs are the bovis types. So I would interpret this data to mean that there is a considerable amount of human pollution from the streptococci present in the sample of water at Omaha and that there is also a certain amount of animal pollution present in Omaha. Now, according to most modern authorities and according to my own experience, the organisms seldom grow in streams and any error that might occur would be due to die-off.

Q. (By Mr. Edelman.) This fecal streptococci test is considered by you, as I understand it, as almost conclusive proof of human fecal pollution, is that correct?

A. Yes, sir.

Q. And from what you indicated in your findings, such human feces entered the river, the Missouri River, 12 hours or more before they reached the Omaha water intake?

A. That is a reasonable, good estimate based upon my own opinion, not upon proof.

Q. That is what we are asking you for, in your opinion.

A. In my professional opinion, yes.

Q. And they could have entered the Missouri River approximately 30 to 36 hours earlier and produced these results?

A. The fecal streptococcus, with the exception of the species I previously mentioned, is a pretty tough organism and I would say in our own experience it survives 72 to 96 hours in tap water or sterilized river water, and I feel sure that is correct.

Q. Mr. Clark, is this organism more or less resistant, I guess the word would be, than coliform or is it also a coliform? That is two questions. I move to strike the last part of it.

A. I don't understand your question because I don't understand what we are looking for, whether it is more resistant or less resistant to what?

Q. I mean is it likely to live to a riper old age?

A. Well, if you will permit me to take a specific example, I will take chlorine. In our own experience that we have run in the past three months we have found that in the chlorination of sewage the E. coli, or Escherichia coil, which is a plus plus minus minus IMViC type, die or is killed off first. The Aerobacter aerogenes and the intermediates are next to go, while you still have a few of the streptococci remaining in the sewage sample and it takes them a little longer or a little more chlorine to kill them. So in my opinion they are tough and resistant and more resistant in such an instance than the coliform group.

Q. As I understand some of the expert testimony that has been given earlier, coliform bacteria when associated with evidence of sewage pollution are generally considered to be an indicator of pathogenic organisms?

A. May I put that in my own words?

Q. Yes, sir.

A. The coliform organism or the coliform group--and I am using that within the scope of the definition of standard methods for examination of water sewage and industrial wastes, and hereafter I will refer to it only as standard methods--the coliform group is a measure of the amount of feces, animal and human, that may be contained in the system. Therefore, if you have--where you have feces present from animals or humans, especially from humans, you may have disease present and the greater the number of grams or pounds or tons, or whatever you want to put it in, of feces you have in the system the greater the possibility that you will include people with disease and people--and disease carriers. Therefore, the coliform index is a measure of the fecal content, and since enteric diseases are always associated with fecal pollution as the coliform index rises, so will the probability of disease germs being present or specifically pathogenic organisms.

Q. Does the presence of fecal streptococci, or as you call them streptococci faecalis, if I have that correct, also serve to indicate for the reasons you have given the possible presence of other pathogenic organisms?

A. The presence of the fecal streptococci, as I have testified to here, or may be called the enterococcus group by others, has the same indicator value as the coliforms. It might vary a little bit in that the enterococcus or fecal streptococci are reported by most authorities to be present only in areas that have been polluted by the fecal excre--by the feces of warm-blooded animals.

Q. Mr. Clark, could you tell the Board what pathogenic organisms have been isolated in sewage? I would like to limit that at this point to the type of pathogens that are ordinarily expected in this part of the world.

A. Yes, sir. Am I correct in interpreting "this part of the world" you mean the upper Missouri River here?

Q. In the reach between Gavins Point Dam and Omaha, Nebraska.

A. Thank you, sir. The type of pathogens which you might logically expect to find present are members of the Salmonella genus. Now, that includes Salmonella typhosa, which is the cause of typhoid fever, the various paratyphoids, and the variety of Salmonellas that produce various light food poisoning, intestinal distress, et cetera. It would also include the Shegella genus and the Shegella are the cause of Shegellosis or the cause of Bacillary dysenteries. Those would be the principal groups present.

Also present in feces and in sewage are both the tuberculosis organisms, bovine types or human types, either of which can produce infection in humans, and the bovine type, of course, might infect cattle using the water.

In addition to that you might find a number of parasites that would be injurious, such as Osaris lumbrocoides, the ova type worms, and other parasites.

Q. Mr. Clark, do you know whether the virus of poliomyelitis has ever been isolated from sewage?

A. Yes, sir.

Q. Has it been isolated?

A. Yes, sir, it has.

MR. DAVIS: May I hear the last two questions and answers, please?

(Record read.)

Q. (By Mr. Edelman.) Now, are there other water-borne diseases or are there other pathogenic organisms which may be water-borne and thus induce disease which are not usually endemic in this area?

A. Yes, sir, there are.

Q. Can you identify them?

A. In the tropics, particularly in Asia as well as in our central tropics, the cholera organism is quite common. Formerly the cholera organism was present further north than it is now, but better sanitation has reduced its amount. You also have the Endamoeba histolytica, which is the cause of amoebic dysentery. And in both areas, both that I have forgotten to mention, and it isn't commonly a water-borne epidemic, but sometimes is associated with those that come in contact with sewage, is the Leptospira infections, which I would like to add to the former ones.

Q. Now--

A. Also, not bacteria especially, but viruses and virus infections have been reported from sewage.

Q. As I understand the purport of your testimony, Mr. Clark, if a person from the tropics should fly in by plane, land in Sioux City, use one of the facilities in a hotel or other public place and flush the product into the sewer, that would reach the Missouri River, and if this person were suffering from cholera or had cholera in his intestinal tract, these cholera would probably reach the river, would they not, these cholera organisms?

MR. DAVIS: That is objected to as irrelevant and immaterial in this matter, Mr. Chairman, and incompetent. I think that also the question is improper in form. It assumes something that has not been shown could happen reasonably. I think we are going very far afield.

CHAIRMAN WILSON: May I ask counsel for the Government whether you propose to follow that up by further testimony showing that it is material?

MR. EDELMAN: Mr. Chairman, we have no idea that anybody with cholera is now in Sioux City. I was asking a hypothetical question to clear up in my own mind whether if a person did have cholera and those organisms did reach the sewage, whether they would go to the Missouri River and create a hazard for anybody who was on the Missouri, to use the Missouri River.

CHAIRMAN WILSON: Well, of course, it is rather remote and speculative, but I think we will take the witness's answer, if he can answer it, subject to the objection.

MR. EDELMAN: I would just like to point out, in these days of fast communication and air travel I would think it is entirely possible.

CHAIRMAN WILSON: Well, we will take his answer and give it whatever weight it seems to be entitled to.

MR. EDELMAN: Thank you.

A. The cholera organism could survive being flushed down the sewer to reach the Missouri River. I base that answer on my experience with isolating cholera in the tropics.

Q. (By Mr. Edelman.) Mr. Clark, you have heard the testimony of Mr. Kittrell earlier today that on the basis of his studies it was his view that 79.7 percent of the sewage pollution entering the Missouri River was attributable to the Sioux City area, and I ask you whether in light of that testimony you have any opinion as to the extent to which pollution from the Sioux City area reaching Omaha contributes to the fecal pollution that you have found at the water intake?

A. On the basis of my studies, I am forced to conclude that the fecal population of bacteria at Omaha is prorated among the population that has access to the Missouri River above Omaha, and since, according to the charts I have seen this morning, Sioux City is the largest city above Omaha, I would be of the opinion that Sioux City would contribute the greatest proportion.

Q. Mr. Clark, if the wastes from the Sioux City area, I mean just the Iowa side of the river, were subjected to sewage treatment and as a result of that sewage treatment there was a substantial reduction of the coliform group in that sewage, would you expect that there would be a corresponding reduction in the numbers of the pathogenic organisms that originated from the same source?

A. Yes, sir.

Q. If the wastes that are presently discharged from Sioux City were subjected to sewage treatment which reduced the organic pollution that is now contributed by Sioux City, what effect, if any, would this reduction have on bacterial and other organisms discharged from that source and surviving in the Missouri River?

A. Based on my experience with growth rate studies, I find that as you limit the food supply you tend to limit the survival and resistance of the bacteria present in the system. Therefore, an appreciable reduction in the organic food material present in the river should result in a more rapid die-off in the river, a more rapid activity of the natural purification processes that occur in the river, and a smaller number downstream.

Q. Do you have an opinion, sir, as to whether the present level of contamination as indicated by the coliform count and by the studies that you have performed that exists in the Missouri River between Sioux City and Omaha represents a hazard to persons using the river for sport and recreation?

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial, and for the reason that there has been no showing made that--there has been no foundation laid as to what he knows about the use of the river.

MR. SAMSON: Does it need a foundation when he asked him if he had an opinion?

MR. DAVIS: Well, if that is it, I withdraw the objection.

MR. EDELMAN: I asked him if he had an opinion.

MR. DAVIS: All right.

A. Yes, sir.

CHAIRMAN WILSON: The witness may answer if he has an opinion.

A. Yes, I have an opinion.

Q. (By Mr. Edelman.) What is that opinion?

MR. DAVIS: Same objection as last above heard.

CHAIRMAN WILSON: Received subject to the objection.

A. On all our studies of polluted waters we find that as you reduce the coliform level you reduce the hazard that the water has. Therefore, if people used the water for recreational purposes and by accident or intention ingested the water, they would stand a better chance of getting disease if it contained 20,000 coliforms per hundred milliliters than they would if it contained one coliform per hundred milliliter.

MR. EDELMAN: We have no further questions, Mr. Chairman.

CHAIRMAN WILSON: You may cross-examine, Mr. Davis.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Clark, in line with that last answer, do you have any information concerning any peoples using the river for recreation purposes, such as water skiing or swimming, becoming afflicted with any water-borne disease and, if so--I mean where it is accidentally ingested, as you say--can you state the time, that is the date, and the place and the people?

A. I am not qualified to answer that question because I haven't seen--have no knowledge whatever of the disease reports of any kind that occur along the Missouri River.

Q. So that you are just saying here there is more of a hazard?

A. I am expressing my professional opinion as to the quantitative hazard.

Q. If Sioux City, Iowa, didn't even exist would it still be your--or is it your opinion that the City of Omaha would still have to treat its water in a treatment plant before it was used by the public?

A. Yes, sir.

Q. So that it is just a question of degree of treatment, isn't it?

A. Yes, sir.

MR. DAVIS: No more questions, Mr. Chairman .

CHAIRMAN WILSON: Have the members of the Board any questions?

MR. SAMSON: I have no questions.

DR. VAN HEUVELEN: I would like to pursue this matter of viruses a little further.

Q. (By Dr. Van Heuvelen.) You say there are certain enteric viruses that are pathogenically manned?

A. Yes, sir, they are.

Q. They are found in polluted waters?

A. Yes, sir.

Q. Is there any means for determining that those viruses are present in those waters in the laboratories?

A. Is there any means for determining it?

Q. I mean a commonly used or easily used laboratory procedure for detecting the presence of virus?

A. There is a use procedure for detecting the presence of viruses. I wouldn't classify it as being an easy procedure. It requires--most of your viruses are-- May I preface this answer?

Q. Surely. Go ahead.

A. I am not an expert on viruses and, therefore, I haven't qualified as an expert. Therefore, I am going to have to answer your question to the best of my recollection.

Q. That is all I am asking.

A. Viruses are peculiar animals in that they will only grow in the presence of living cells, so therefore to identify viruses you have to grow them in a living tissue cell. Now, the ones we most commonly use are human liver tissue cells, He-la cells, or monkey kidney cells. The virus has to be concentrated and inoculated into those cells for cultures and then you could make a count, a plaque count. The quantitative recovery ratios of these plaque counts I can't estimate, but I would say that the variation is from 2 to 3 logs difference on split samples on reproducible tests, so therefore the study of virology in water and sewage is in its infancy. Now, I did in Manila, using sewage samples from a large interceptor sewer in Manila, and injected into monkey brains, because we could send a detail out and collect all the monkeys we wanted free of charge, we use that method, inject into the monkey brains this sewage from the interceptor and we did isolate in several instances polio type viruses.

Q. Now, you have indicated that some of these fecal streps are pretty tough hombres as far as killing is concerned. How about the viruses? Do you have any opinion as to the susceptibility of the pathogenic viruses to such things as chlorine, for example, as in the concentration in which it would be used in ordinary water treatment?

A. Doctor, that is kind of a tough one.

MR. DAVIS: What was the statement, sir?

Q. (By Dr. Van Heuvelen.) I don't know. That is why I asked you.

A. Why--

MR. DAVIS: Can you answer it, sir?

A. I am going to try.

MR. DAVIS: All right.

A. To the best of my recollection. I believe that in Edmonton, Canada, you would find they had quite a polio epidemic, and the epidemiologists wrote that report up stating that it was due or attributed to drinking improperly chlorinated or insufficiently chlorinated treated water. I can't recall the exact date, but it is in the last two years in the literature. And if I recall also, two people by the name of Kelly and Sanderson, and I believe you will find that in the Journal of the American Public Health Association, 1958, I can't recall the month, studied polio virus and coxsackie B 1 virus and several other viruses and I believe that they tested them in water at pH 7 at 25 degrees centigrade and found it took three-tenths of a milligram per liter to kill the organism of the virus in 30 minutes, and I think later on they found that if you changed the pH or changed the temperature it took a much longer time.

And also I recall one other instance, I think, the Delhi, India, epidemic. I believe they reported from twenty to forty thousand cases of infectious hepatitis and they also reported that that was in a treated water supply. The reports of that epidemic did not indicate that there was any increase in the enteric disease rate, although they had this terrific epidemic of virus. Therefore, I would interpret it as meaning that the viruses are probably more resistant to chlorination than are the coliforms, to the best of my recollection.

DR. VAN HEUVELEN: No further questions.

CHAIRMAN WILSON: Other questions?

Q. (By Mr. Samson.) I have just one, Mr. Clark. Is there any competent authority to the effect that chlorination will take care of the virus problem?

A. That chlorination--

Q. Will take care of the virus problem?

A. May I again go back to expressing an opinion?

Q. Certainly.

A. I am certain in my own mind that probably viruses exist to a certain extent in mixed sewage, but I imagine that proper sedimentation, coagulation, prechlorination, filtration and postchlorination will probably reduce the virus so much or inactivate it from a pathogenic viewpoint to such an extent that on a properly-treated water supply the combined processes will take care of it.

Q. Would that be termed, then, as a very high degree of treatment?

A. I would say you need to exert a high degree of treatment.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: Yes, I have one.

Q. (By Mr. Kurylo.) You are talking about the treatment of a water after it is delivered at the source at which it is to be used. What risk would be involved between the time the pollution entered the stream and the time the water arrived at its source of use? Maybe I am not making my question too clear. But let us assume the existence of conditions as reflected on Government's Exhibit 25, which is just behind you.

A. Is this 24?

Q. Yes.

SECRETARY AYERS: I don't know. Let's see. Yes.

Q. (By Mr. Kurylo.) As I understand it, a very high treatment of the water would be required at Omaha--

A. Yes, sir.

Q. --to eliminate the hazards which you indicate might exist?

A. Yes, sir.

Q. Would the existence of this bacteria in the water between Sioux City and Omaha constitute a hazard to the health of water users between Sioux City and Omaha, in your judgment?

A. You mean water users of untreated water from the river?

Q. Water users of untreated water, either by swimming in the river or by fishing or by having some spray splashed on them while they are in the boat or by pulling fish out and having their hand cut on the fish hook and washing off the blood in the river?

A. Well, I will go back to my original statement. The more coliforms you have from the greater number of sources the better chance you will have of pathogens, and if they ingest pathogens in an infectious dose along through any of these activities, yes, it does constitute a hazard. How much of a hazard, I am not prepared to say.

Q. Would that hazard be substantially reduced through adequate treatment of sewage at the source before it enters the stream, in your opinion?

A. Yes, sir.

MR. KURYLO: I have no more questions.

CHAIRMAN WILSON: Any more questions?

MR. POOLE: I have one, Mr. Chairman.

Q. (By Mr. Poole.) Did I understand you, Mr. Clark--we are back on bacteria now--

A. Yes, sir.

Q. --to say that in your opinion by the removal of organics or food supply from a stream that you would effect a greater die-away of the bacteria that were left in the stream than if you had not removed part of the food supply?

A. Yes, sir, you are correct in your interpretation, in my opinion.

MR. POOLE: Thank you.

A. The more you starve a bacteria to death the quicker he dies off.

Q. (By Mr. Poole.) Well, then, to put it in another way, you get a double-barreled effect on bacteria reduction at Omaha by treatment of sewage at Sioux City: first you take part of them out and secondly those that go to the river stand a chance of dying off more rapidly before getting to Omaha?

A. That is a possibility.

CHAIRMAN WILSON: Any other questions?

Q. (By Chairman Wilson.) Doctor, I would like to ask you a further question prompted by the question that Mr. Poole just asked. I think the conclusion to which he called attention was that the intensity of bacteria would be lessened by removing their food supply, consisting of organic matter in the water, and that by proper sewage treatment the amount of that organic matter would be reduced. Would the removal of that organic matter, or part of it, by sewage treatment have any other effect in the elimination of bacteria in the water by reducing the biological oxygen demand or otherwise? It was testified here that the removal of--or that the organic matter discharged with the sewage has a certain amount of biological oxygen demand, although I think it was also stated that it had not reduced the oxygen demand in this stretch of the Missouri River below standards required for maintenance of aquatic life.

A. Yes.

Q. But would the reduction of that oxygen demand by the reduction of the organic matter in the river have any effect on the bacteria in the river, other than just removing their food supply? I mean has this oxygen in the water--is that a factor in the survival of bacteria?

A. As I understand your question, is the oxygen a factor in the survival or death of the bacteria in the river?

Q. Yes, that is the point.

A. My answer to that, sir, would be no, for two reasons. In the first place, your indicator organisms, the coliforms are defined as aerobic anf facultative anaerobic, meaning they grow best in the presence of free dissolved oxygen, but they also can grow well in the absence of oxygen. And most of your other pathogens can grow well in the absence of oxygen as well as in their presence. So I would say that from an over-all picture the amount of dissolved oxygen would have no effect upon the common indicator organisms used for stream pollution work nor upon the common enteric pathogens that might be present in the stream.

CHAIRMAN WILSON: That answers my question completely.

Any other questions?

MR. DAVIS: I have one, Mr. Chairman, based on the first part of your question.

Q. (By Mr. Davis.) I understood you to say, Mr. Witness, that these organisms survive longer if they have organic matter to feed upon, is that correct?

A. Yes, sir.

Q. Calling your attention to Government's Exhibit No. 22, which is a graphic representation of the contribution from the city of domestic sewage and from the packing plants of organic matter, if a way were devised such as in-plant practices by the packing plants to remove the brown portion of the organic matter shown on the chart, would that materially affect the count of the coliform bacteria at Omaha?

A. Mr. Davis, could I consider that a hypothetical question and give you a hypothetical answer?

Q. Yes, sir.

MR. POOLE: It is a hypothetical question.

A. Before I could give you a definite answer on that I would like to have a time to study the bacterial decomposition of those waste products that are represented there in the dark color. If they are metabolized by the various bacteria which we have been talking about today, then the removal of those bacteria would probably markedly help the river. On the other hand, if they didn't stimulate the growth of these bacteria or didn't protect them to their colloidal activities, it probably would be a disappointing experiment.

Q. (By Mr. Davis.) So you are saying maybe yes--

A. I don't know.

Q. --maybe no.

CHAIRMAN WILSON: Are there any other questions?

Now, what about resuming tomorrow morning? Is everyone agreeable to coming again at 8:30?

MR. EDELMAN: Sir, we have one very short witness for the Government who is here from the Corps of Engineers. He has a rather important and detailed job and we would like to put him on. I don't think we would ask him more than four or five questions.

CHAIRMAN WILSON: Well, if the reporter and counsel for the City are agreeable, we will take this witness. Any objection?

Go ahead and call him.

MR. CLARK: Am I excused, Mr. Chairman?

MR. EDELMAN: You are excused.

(Witness excused.)

KENNETH E. RISTAU,

called as a witness on behalf of the Government, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. EDELMAN:

Q. Mr. Ristau, I remind you you were sworn earlier. The testimony you are about to give is still under that oath. Will you identify yourself for the reporter?

A. Kenneth E. Ristau, 814 South 92nd Street, Omaha 14, Nebraska, a civilian employee of the Corps of Engineers, head of the Report Section of the Planning and Reports Branch.

Q. (By Chairman Wilson.) May I have your name again, please?

A. Ristau, R-i-s-t-a-u.

Q. (By Mr. Edelman.) Mr. Ristau, in the course of your regular duties are you familiar with the flood control project at Sioux City, Iowa?

A. Yes. The project that is now authorized was developed in my section and I have been working with it since its inception.

Q. Are you aware of a projected plan for the construction of sewage treatment works at Sioux City, together with appurtenances?

A. I am.

Q. I ask you, is that projected plan which is in the engineer's report that has been submitted in evidence incompatible with the Corps of Engineers flood control plans for Sioux City? In other words, can they be coordinated so so that both can be achieved?

A. I say they can be coordinated.

MR. EDELMAN: That is all.

CHAIRMAN WILSON: Any questions?

Members of the Board?

MR. HERSHEY: Yes, I have a question.

Q. (By Mr. Hershey.) Mr. Ristau, the flood control project for the Sioux City area, I would like to know how much is the estimated cost?

A. The Federal or the non-Federal or both?

Q. Both.

A. The current cost estimate, which was the last one submitted to Congress, has an estimated Federal cost of 9.1 million dollars, an estimated non-Federal cost of 4.1 million dollars, or a total cost of 13.2 million dollars.

Q. Am I to understand that this is for the Sioux City part alone?

A. You are correct. The project only extends upstream as far as Leeds on the Floyd River.

Q. And this non-Federal cost would be borne by Sioux City, 4.1 million dollars?

A. That would be borne by anybody other than the Federal Government. In other words, to such extent as the State of Iowa, Woodbury County, or other organizations would participate in the financing, Sioux City would be relieved of that share. Now, while I am talking about a cost figure, I want to point out that these are index figures from some previous estimates turned back in 1956. We are just now making our detailed planning studies. One more item. Our requirements are only in terms of physical work which would be performed, but for economic reasons we have to attempt to put a dollar price tag on them. What their eventual cost would be would be entirely up to the local interests.

MR. HERSHEY: I have another question, Mr. Chairman.

Q. (By Mr. Hershey.) You testified that this project has already been authorized. Have any funds been appropriated by Congress for it?

A. The project was authorized by the Flood Control Act of 1958 and we received an initial planning allotment during the current fiscal year. The President's recommendation provides sufficient money for the following fiscal year to complete all the detailed plans and specifications that would be necessary to put the project in the construction stage.

Q. As of what date?

A. As of--

Q. You mean the next fiscal year?

A. As of July 1960, assuming that the Congress appropriates the money that is now in the current budget and further assuming that Congress would provide construction money for fiscal year 1961, and further assuming that by that time the City of Sioux City can physically provide the right-of-way and relocations that are required for the first stage of the project.

MR. HERSHEY: Thank you very much. That is all I have.

MR. SAMSON: I would like to get a little more information on this problem.

Q. (By Mr. Samson.) It will just take a few minutes, Mr. Ristau. As I understand it, there has been no appropriation by Congress of any part of the funds to date, has there?

A. For the actual construction. We are now working on planning money right now, on the detailed plans for the project.

Q. Well, over what period of time would this project extend, that is from the initial planning, which apparently is now up, until the project has been finished?

A. We have prepared a tentative schedule, and you will appreciate, of course, that as of this time we have no control over how much money would be provided in any one given fiscal year, if any would be provided. And so it is based upon assumptions of what we might logically expect over a period of time. Assuming this next money is appropraited, by July of 1960 we would be ready to let the first contract.

Q. That is July 1960?

A. July of 1960. And then if Congress made money available at the rates that could be utilized for the project and there were no complications on the part of the City of Sioux City in providing the lands and rights-of-way and the relocations, it would be feasible from an engineering standpoint to have the project completed by the end of calendar year 1963.

Q. (By Mr. Poole.) That is on the basis of letting the first construction contracts in July 1960?

A. That is right. Now, prior to that time the City of Sioux City would have to actually have certain right-of-way in hand before we could start on the construction.

Q. (By Mr. Samson.) Mr. Ristau, do you know whether or not the City of Sioux City has made any efforts at all in right-of-way acquisition, any survey on right-of-way, in this connection? Do you have any personal knowledge of it?

MR. SAMSON: Possibly, Mr. Davis, you are going to develop this some place else.

MR. DAVIS: Just as well develop it here. It just saves that much time in the succeeding days, Mr. Samson.

A. Our procedures--

MR. DAVIS: Excuse me, I didn't answer your question. We do have something on it, but I am suggesting we just go ahead with him.

A. Our procedures prevent us making a formal request for specific right-of-way until after the final plans and specifications have been developed. But on the basis of the project that was outlined in the authorizing document, we have made certain information available to the city, we have discussed with the city a tentative time table, and we have had certain indications that the city is now taking active steps to develop the plan under which they would finance their part of the project.

Q. (By Mr. Samson.) May I stop you right there. What indications have you had from the city that they intend to proceed? If that question isn't embarrassing.

A. I do not know why it would be a matter of confidence, but the city has retained some financial consultants to help them develop a means of financing the project and we have been visited by those people.

Q. All right, go ahead with your original statement.

A. I have lost the trend of my thought.

MR. SAMSON: I think you finished it.

(Answer read.)

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Samson.) Now, do you have any information or do you have any judgment at all of where this 4.1 million dollars would come as between state, county and municipality, from your past experience on this type of a project?

A. I can not state exactly how it would work out as far as Sioux City is concerned, but in most cases the State Highway Departments generally assumed the cost of the state road and bridge relocations.

Q. That would amount to about how much out of the 4.1 million dollars?

A. I don't have that broken down by that element. I would have to go through a long table that I have and summarize it out by specific bridges.

Q. Well, no, just generally, Mr. Ristau, as nearly as you can tell by just casually looking at it, how much would be involved on the roads and bridges as far as the state is concerned out of the 4.1 million dollars?

A. I think the state could very well--I mean that the state's share might possibly approach 25 percent.

Q. That would be about one million dollars. All right. Now, how about the county?

A. We haven't attempted any breakdown on that.

Q. But there would be a breakdown between the county and the municipality, would there?

A. I mean that is entirely up to the local sponsoring group. I mean if the City of Sioux City wanted to assume the whole load, as far as the Federal Government was concerned that would be purely a matter of the local people.

Q. All right. Now, my other question is, and when would the balance of the 4.1 million dollars be payable or on what basis would that be payable on this project, over what period of time or how would it be allocated?

A. As I said, this money cost is based in terms of specific items of work, so whatever measures would be undertaken locally to finance it would determine the spread under which they would operate.

Q. I mean could it be five or ten or fifiteen or twenty years?

A. As far as we are concerned, as long as they can provide us title to the lands under the law -I mean give us permission to enter on the lands under the laws of Iowa and show that they have the financial ability by some plan to do these things that they will undertake, how they pay for them, over what period of time, that is not--

Q. That isn't a problem?

A. Not for the Federal Government.

MR. SAMSON: Very well. Thank you very much.

MR. KURYLO: I have a question, sir, if I may.

CHAIRMAN WILSON: Yes. Go ahead.

Q. (By Mr. Kurylo.) Assuming that for some reason or other, either the lack of an appropriation by the Congress or the inability of Sioux City to assume the obligation or for some other reason, the work on the flood control project could not proceed according to the schedule which you indicated, the fact that you do have a project plan would nevertheless make it possible for Sioux City to undertake other plans for a sewage disposal system if it should desire to take such action so as to insure that both projects could proceed in an orderly manner without having a lot of public money expended in one activity and then be torn out and because of another one coming a few years later? It would be possible to achieve that kind of coordination, wouldn't it?

A. It would be possible. There might be some problems involved, but it would be possible.

Q. This would be something for the city to decide?

A. That is right. Because if any sewer work were put in in the area that would be involved by the channel and then that had to be replaced at a later date, then, that would then become a part of the non-Federal cost of the project.

CHAIRMAN WILSON: Any other questions?

I have a question or two, but you go ahead, Mr. Davis.

MR. DAVIS: Well, I think I can clear the air a bit here.

CHAIRMAN WILSON: Maybe you will get the answer to my question.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. When you say that this project is not incompatible with a sewage disposal system, or also in answer to Mr. Kurylo's question that they could proceed at the same time, you mean engineering-wise, isn't that correct?

A. I want to come in on two counts. One, the only part of that question that I answered was that it could be coordinated.

Q. Yes.

A. I didn't answer a specific question about it being compatible.

Q. Well, I caught the word compatible.

A. And the second thing is, I am speaking strictly from a technical standpoint. From the local situation I am not prepared to give any opinion.

Q. Well, we have no quarrel, Mr. Ristau. I am just trying to establish that you say they could be physically done at the same time or coordinated, but you have no knowledge as to the financial problems involved for the city, isn't that correct?

A. Except that I have already had some indication of the problems that are facing them in connection with the flood control project.

Q. Yes. But the flood control project engineering-wise could be coordinated with the sewage plant?

A. That is right, sir.

Q. Yes, that is all you are saying. But you don't know what the city's problems are in detail financially, isn't that correct?

A. That is right.

Q. Now, this 4.1 million dollars is non-Federal funds. You don't have the exact breakdown?

A. I have a table broken down; it will probably take 15 or 20 minutes to run through it and allocate it.

Q. I was just talking to Mr. Bodine here, the City Manager, and you have no quarrel with what he has worked out. Incidentally, it is between 3.2 and 3.6 million dollars is the city's share for this land acquisition and the county is not involved, is it, as far as you know?

A. I haven't had any reason to suspect that they have.

Q. Now, if we can raise whatever that figure will prove to be from our testimony, by what time under your tentative schedule will we have to acquire the land for this channel relocation?

A. They would have to be acquired on a staggered schedule. You will notice that we had the construction schedule extended over a period of about four years. I will have to go back to the schedule. Being completed in '63, that will be roughly three and a half years.

Q. Over which time we have acquired different parts?

A. That is right. We would let the job in small units, possibly working from the mouth on up the river, but prior to the time that we let a contract for each unit the city would have to have the means to accomplish certain things for that unit.

Q. Correct. And the first unit, land, would have to be acquired when?

A. We would have to have that before we open the first contract, which in our optimistic schedule is July of '60, which means that things would be getting somewhat crowded.

Q. Right. We will have to arrange our financing and acquire the land prior to that?

A. For that first unit.

MR. DAVIS: For that first unit.

MR. SAMSON: Are you through, Mr. Davis?

MR. DAVIS: I am through.

MR. SAMSON: I have just one short question.

Q. (By Mr. Samson.) When did negotiations begin or when were they initiated between the City of Sioux City or their representatives and your department in connection with this Floyd River problem?

A. You mean subsequent to authorization of the project?

Q. Well, when did you first get into negotiations or discussions in connection with this project?

A. Well, actually we first got into discussions locally shortly after we began our studies, because before we can send in a report we have to have some kind of a statement from a local sponsoring agency that if Congress authorizes the project local people would be able and willing to do certain things. Our report was submitted in I believe September of '55, so prior to that time we already had one resolution from the City Council giving an opinion.

Q. That answers my question.

A. Now, the project was authorized, then, in 1958 and as soon as we got our planning money we again started some meetings with the City Council trying to get things lined up for this construction phase.

Q. That was in 1958?

A. Right, sir.

Q. Summer or fall or spring?

A. Our first meeting was near the end of September.

MR. SAMSON: I see. Thank you very much.

Q. (By Mr. Davis.) Mr. Ristau, you and I have worked on this since '54, both of us, haven't we, and our predecessors?

A. That is right.

Q. I think it started really in '52 or '53?

A. It actually started from the day the flood hit in '53.

Q. (By Chairman Wilson.) I think, Mr. Ristau, that, at least inferentially, you have answered my question or one of them in answer to a question asked you by Mr. Davis, but I want to be sure. Do these things that are covered by this 4.1 million dollars of local contribution have to be done as the project proceeds within the time that you estimate for its completion from the engineering standpoint by the end of 1963?

A. Certain things are a must. For example, your lands and relocations of utilities and other property. Certain items, for example, you might have a bridge crossing that local people might want in the over-all picture, but they themselves might elect to defer that to some future date providing they can satisfy their constituency.

Q. But as far as paying the cost of them is concerned, it would be no concern of the Government whether that was spread over a period of time by bond issues or otherwise?

A. No, sir.

Q. Now, the other question that I had. From the physical or engineering standpoint is it necessary that any part of this flood control project be completed before the undertaking of a sewer treatment project?

A. I would say that assuming--and that is starting to be a pretty big assumption--we have good reason to believe that both projects would be going through, there would be no reason why any part of the flood control project would have to be physically completed prior to the time you could do any work on the sewer project. In fact, it would be very desirable if the planning for the two of them could go hand in hand.

Q. (By Mr. Davis.) For example, Mr. Ristau, we couldn't put our Floyd interceptor in now, could we? We would have to wait until you get that channel determined and constructed, if it is going to be an integral part of it?

A. That is right, to some extent the flood control project or the plans for it might affect your scheduling on the other project.

Q. (By Mr. Samson.) But you said that they should be coordinated?

A. Very much so.

MR. SAMSON: Yes. Thank you.

CHAIRMAN WILSON: Any other questions?

MR. POOLE: Yes, one more now.

Q. (By Mr. Poole.) Did I understand you that you have authorization for all of the planning or do you have authorization for part of it and the rest of the planning money is in the President's budget? Is that what you said?

A. Your last statement is correct. The favorable recommendation by the Bureau of the Budget for the remainder of the planning money.

Q. Then there is reason to assume that the planning will be completed by July 1960?

A. Barring--that is, the money will be available for the planning. There might be other complications arise.

CHAIRMAN WILSON: Are there any further questions? All right.

(Witness excused.)

CHAIRMAN WILSON: I just have one more general question. In view of the fact that we have now worked half an hour overtime, what is the consensus about starting at 8:30 in the morning?

MR. SAMSON: I think that the Chairman has indicated that he wants to start at 9 and that would be agreeable with me.

CHAIRMAN WILSON: Well, I am perfectly willing to start at 8 o'clock if everybody else wants to. How about the Government? 8:30 I mean.

MR. EDELMAN: We have no objection, sir.

CHAIRMAN WILSON: To starting at 8:30?

MR. EDELMAN: 8:30 or any other time that the Chair wishes.

CHAIRMAN WILSON: What about the city?

MR. DAVIS: I think I side with Mr. Samson and you. I think now 9 o'clock would be preferable.

CHAIRMAN WILSON: Well, I am sure that the reporter would concur in that.

Well, we will adjourn, then, until 9 o'clock tomorrow morning.

MR. STEIN: Mr. Chairman, before we adjourn--

CHAIRMAN WILSON: All right, just a minute.

MR. STEIN: The Government will just have one more witness. We will recall Mr. Hopkins to the stand. That will take for our presentation no longer than a half hour. Now, depending on Sioux City counsel's and the Board's cross-examination, I think counsel might be able to plan the calling of his witnesses with that information.

CHAIRMAN WILSON: Very well, the city will take notice of that and plan accordingly.

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WHEREUPON, the hearing was adjourned until 9 o'clock a. m. of the following day at which time the following further proceedings were had and entered of record, to wit:

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MORNING SESSION, THURSDAY, MARCH 26, 1959

CHAIRMAN WILSON: The hearing will come to order.

MR. STEIN: Mr. Chairman, Mr. Ristau, the last witness who was here yesterday from the Corps of Engineers, wishes to make a very short statement to correct the record. M y we call Mr. Ristau for a very short statement?

CHAIRMAN WILSON: Very well. Put him on.

MR. STEIN: Mr. Ristau.

KENNETH E. RISTAU,

resumed the stand and testified further as follows:

REDIRECT EXAMINATION

BY MR. STEIN:

Q. Mr. Ristau, you will recall that you are still under oath.

A. Yesterday in response to a question I ventured the guess that the portion of the non-federal costs that might be allocated to the State might approach 25 percent. On checking back on the statements that I have with me, I find that of the items of bridge work involved approximately 20 percent of the non-federal bridge costs are on state highways, but of the total non-federal costs our estimates for bridges and road relocations are in the magnitude of 11 percent of the total non-federal costs. That is all that I have.

CHAIRMAN WILSON: Any questions?

MR. DAVIS: Yes.

RECROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Ristau, since you have had time to work this up, I am wondering if you could help the Board and me, inasmuch as I am short a witness right at the moment, Mr. Bodine. What is the City in dollars going to bear? Have you broken down the non-federal so that you can tell the Board the number of dollars that the City will be expected to put in under the present planning?

A. I didn't do that for two reasons. One was that, as I said, the figures that I have in my report were based upon estimates of bridge work and road relocations as of the time of the preparation of our report. At the present time we are preparing new detailed plans and specifications recognizing the changes that have occurred since that time. Also the City's share would be in items of specific work. So I would prefer to keep my testimony in regards to the percentage of the non-federal costs as given in our original estimates.

Q. What is the significance of what you said this morning? That is what escapes me right for the moment.

A. Well, the major significance is that of the total non-federal costs the City's share is in the magnitude of 90 percent rather than 75 percent as might have been indicated before.

MR. DAVIS: Thank you.

Q. (By Mr. Samson) Mr. Ristau, I had a question on the time table involved in the Floyd River project. Could you give the Board the benefit of any information which you might have as to when the clear title to any piece or parcel of the land involved would have to be acquired by the City before you can -- is it seek the appropriation or begin your work? Do you know what I mean?

A. Yes, sir. We have two problems involved. One is, in support of the appropriations and before we can actively go out and request specific right-of-way, we have to have a plan from the City or the other cooperating agency as to how they are going to accomplish the work. In other words, that is primarily a guarantee to the federal government that we are not going to start in on a project and then at the end of the year we will find out that the local people do not have the resources to complete the job and we are there with a job that is halfway completed. So they have to provide a statement of what we call financial feasibility as to how they are going to finance their part of the work. That would have to be in our hands and accepted prior to the time that we advertise for the first work. We would also have to have from their attorney a statement that they had all the rights-of-way for the amount of work involved in the first contract prior to the time that we opened the bids. The present objective, assuming that all the funding arrangements and everything else proceed, would be for this first contract to be let in July of 1960. So that would mean both the statement of feasibility and the actual rights-of-way for the first segment of work would have to be in hand, then, by July of 1960 if that specific schedule is to be met.

Q. Now, let me ask you this. Do you have at the present time from the City such plans or do you have such statement of feasibility from the City of Sioux City?

A. That is one of the items that we are now working on with the City Council, and as I mentioned yesterday, they have this firm of, I think it is, Municipal Research Associates of Chicago who are preparing part of their financial plan that will be used in the City's presentation to the Corps of their feasibility for carrying out their part of the project.

Q. Then the answer to my question would be that you do not at the present time have such statement of acquisition of the right-of-way from the City of Sioux City's attorney nor do you have in your possession at the present time plans from the City?

A. No, sir.

Q. Let me ask you this question, Mr. Ristau. How long does it usually take to work out the right-of-way problem in this sort of a situation, in time?

A. That is a very, very difficult thing to generalize on.

Q. I see.

A. We have a little project up in Rapid City involving only something over a hundred thousand dollars and there has been over a year and a half involved on trying to get the right-of-way. The Government is all ready to proceed. On the other hand, we have had larger projects, like the Little Sioux River, that within about a year or a year and a half were able to start in on the first steps and show their plans for the work.

Q. Are there many problems in the Floyd River flood control situation involving many different individuals and many different problems as to acquisition and land ownership, and so forth?

A. Yes, there will be certain business firms, a number of residences to be relocated. There is a question of a large number of both street and railroad bridges to be changed. And that is all tied in now to the question of the State's pending relocation of Highway 75 and might even get into some problems here on the passage of the new interstate down at the mouth of the --

Q. That, together with the financial or the economic feasibility, is all involved and must be if you are to proceed in July of 1960, all involved in a period of about a year, isn't that right, a little over a year?

A. Yes, sir.

MR. SAMSON: I have no further questions.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: Yes.

CHAIRMAN WILSON: Mr. Poole.

Oh, do you have some more questions?

MR. DAVIS: I would just as soon Mr. Poole would go ahead.

Q. (By Mr. Poole) I asked you one question yesterday about assuming that you got the rest of your planning money out of the appropriation bill that is now before Congress if complete planning would be finished by July, 1960, and you gave me a rather indefinite answer. My question now is, has the planning of this project proceeded to the point where it need not interfere with planning of an interceptor that undoubtedly has to go somewhere in the Floyd River area or will the interceptor planning have to wait until your planning proceeds farther?

A. The detailed planning is proceeding. In any kind of a local cooperation project where the local people have to provide the rights-of-way, we are subject to some changes right up to the moment that we have the right-of-way in hand. However, when you consider the relative areas involved by the interceptor sewer and the floodway, we have less latitude for locating the flood control project than we have for locating the interceptor sewers. So if we take the general location for the floodway project and use that as a base, it should be possible to build the interceptor sewer so that there would be no major conflicts.

MR. POOLE: That is all.

Q. (By Mr. Davis.) But of course, Mr. Ristau, that couldn't be done until your floodway is constructed, could it?

A. I would say that if both plans -- I am saying the sewer plan and the floodway plan -- are sufficiently firm, it would be possible to schedule the construction arrangements on the two so that the two could go together. In other words, it wouldn't necessarily be a requisite that a major portion of the floodway be physically completed before you did the interceptor sewer provided you had assurance that the floodway project was going to go through.

Q. Correct. It isn't a question of which comes first, the chicken or the egg; they come at the same time, isn't that right, the construction?

A. Basically. But I also believe that it would be possible, recognizing the general area in which the floodway project would go, to design your sewer layout so that you would miss your early construction problems.

Q. To design, you say. Mr. Ristau, in connection with the questions that Mr. Samson asked you, the City has indicated its responsibility and its willingness to go ahead and as of now had done everything that is required of it, is that correct, on this land acquisition or bearing its share of the cost?

A. They are working on the specific things that we have asked them.

Q. Now, anything that would jeopardize the City's financial position, specifically its ability to raise money for its share of this cost, would jeopardize the whole flood control project, would it not?

A. Let me answer you this way, that until the Corps of Engineers has presented to them a definite plan for financing the flood control work and the formal statements from the City, we would be unable to start the flood control project.

Q. Then your answer, in effect, is yes, isn't it?

A. Not exactly.

Q. Well, I will put it to you this way, Mr. Ristau. If the City under Iowa law has a certain limit of borrowing power and all of that borrowing power is exhausted in connection with this sewerage plan and the City is unable to raise its share of this tab, whether it is three and a half million dollars or otherwise, I don't care, is unable to raise enough to do the first unit of your work, then the flood control project, so far as the Federal Government is concerned, is out of the window, isn't it?

A. It would at least be deferred.

Q. Until what time?

A. Until such time as they could produce the rights-of-way and the plan for proceeding with the work.

Q. In effect until they could raise the three million dollars, isn't that so, or what portion of it would then be needed?

A. According to the schedule that would be required.

Q. Yes. Now, Mr. Ristau, this flood control project comes about because of a major flood in Sioux City which occurred when?

A. July, 1953.
Q. Do you have any information ---

MR. SAMSON: What year was that?

CHAIRMAN WILSON: July, 1953, he said.

Q. (By Mr. Davis.) Do you have any information -- maybe you had better check that, Mr. Ristau. You may want to amend that.

A. That was 8 June 1953.

Q. Right. Do you have any information in your official records concerning the amount of property damage suffered within the City of Sioux City, Iowa, in that flood of June of 1953?

A. They were in excess of 23 million dollars.

Q. Now, I take it that it is the purpose of this flood control project to assure or to so control the Floyd River within the confines of the City of Sioux City that a similar flood resulting in 23 million dollars in property damage -- I will not ask you about the loss of life because I don't think you know -- will not occur? That is what this project is designed for, isn't it?

A. That is right.

Q To protect the health, the welfare and the property of the citizens of Sioux City?

A. Right.

Q. I would assume that in your planning these figures have become important and the Government has arrived at a cost benefit ratio in the project which is satisfactory to the Government, is that correct?

A. We have to have a statement that the benefits, to whomsoever they may accrue, are in excess of the annual charges of the project before we can recommend it, and that figure must still stand even to place it under construction.

MR. DAVIS: Thank you, Mr. Ristau.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: Yes, I have a question or two.

Q. (By Mr. Samson.) Mr. Davis discussed with you the element of damage and loss of life in the area. The Board would be interested in knowing from you, Mr. Ristau, generally the nature of the industry or the nature of the property that was involved in the flood control project for the Floyd River area.

A. You mean the type of properties that are in the benefitted area?

Q. Yes.

A. Some of your principal beneficiaries, of course, would be the Sioux City Terminal Railroad, your packing houses, your manufacturing concerns like Wincharger, some very large grocery warehousing projects, in addition to countless residences. I can give you a figure on the number of residences involved. There were 1200 residences and 500 business and industrial establishments affected. Fourteen lives were lost at that time.

MR. SAMSON: I see. All right, fine. Thank you.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: One question, sir.

Q. (By Mr. Kurylo.) What is the frequency of the '53 flood?

A. We are very hesitant in applying a frequency figure to anything beyond what we consider a once-in-one-hundred-years flood. We have another category for considering these larger floods and that is a standard project flood and that is something that is transferable from different parts of the country. It generally represents about the sixth or seventh larger flood that by meteorological conditions transposed could result in that area. And this flood on the Floyd was 74 percent of that standard project flood and if the center of the storm had moved only a short distance, something like 20 or 25 miles, we would have had a standard project flood in Sioux City.

Q. How often have you had such a standard project flood in Sioux City?

A. We have had one.

Q. In how many years?

A. Records extend back beyond 1900.

Q. When did that one occur?

A. That was the -- oh, you mean such a standard project flood? I am sorry, there has never been a standard project flood. We have had the one occurrence that I mentioned in '53, which is the largest flood of record in Sioux City. I misunderstood your question.

Q. The largest flood of record in how many years records have been kept?

A. We have records of one sort or another extending back beyond the turn of the century. Some of them get fragmentary as you go back in the early years. But that still does not reduce the risk that is involved here.

Q. On the other hand, assuming that I understand your statements correctly, the nature of the '53 flood is one which thus far, based upon the records which you have just stated, has occurred only once in 50-odd years of record keeping?

A. Right. But on the other hand, you --

Q. I didn't ask you that.

MR. DAVIS: Well, I will ask him.

Q. (By Mr. Kurylo.) I want to ask you another question. Have you any assurances that such a flood might occur again at any time in the future?

A. You have no assurance at all that anything will happen in the future, including the fact that the future will be here tomorrow. I mean we are working on the same problems there. However, I do want to mention one point in clarification of this frequency, that on at least one river in western Iowa we had two 100-year floods occurring in one month, so I mean when you apply a frequency figure it is just like dealing with life insurance. It is not a specific protection, it is a hedge against the averages.

Q. Can you give me any other cases where there have not been the hundred-year frequency flood ever reached where records have been kept? You cited one where it occurred twice in the same month. Can you give records on the other side of the picture where the hundred-year frequency has never been reached? I am not trying to cloud the issue here, but you are presenting information here which may influence the local people in trying to arrive at a financial program to undertake certain types of public improvements. We here at this hearing are concerned with a pollution abatement problem, not with flood control.

A. I will have to answer your question indirectly, that in many areas we have had large floods. We have not had a hundred years of record. So from both a practical and a statistical standpoint, it is very hard to pinpoint whether you have actually had that hundred-year flood. We have statistical methods for arriving at flood frequencies. They are subject to their own interpretations within the profession. The only place in the world where you would have a reasonable assurance would be on something like the Nile River in Egypt where they have had records for 1,800 or 2,000 years and there we would be in a good position to say what a hundred-year flood or a thousand-year flood would be. But we do feel that as far as the science of hydrology and our statistical analysis is concerned, that we are on the right track in coming up with these expected probabilities, subject, of course, to all the errors that any probability is.

MR. KURYLO: No further questions.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Davis.) The '53 flood, you are saying, was the biggest that we had, have had in Sioux City, is that correct?

A. Correct.

Q. Now, do you have figures to show the number of floods preceding it that we have had on the Floyd River in Sioux City which resulted in the loss of life as many years back as you can go?

A. I would have to go back to one of our reports for a detailed breakdown, but I do have the figure here in front of me that over the period of record we have had 45 lives lost in the basin, principally in Sioux City.

Q. And of what period is that?

A. Excuse me one second.

Our stage records go back only to December 1934. Prior to that we have newspaper accounts and other historical information. During the 85-year period from 1870 through 1954 there have been 62 floods in the basin of such severity as to warrant newspaper mention. All of these caused damage along the main stem and some affected the tributaries as well. If we are going to class them in magnitude, 7 of them were major, 11 moderate, and 44 relatively minor. Specifically one of the most damaging as far as Sioux City was concerned was the flood of 1892 where 25 lives were lost in that one flood.

MR. DAVIS: Thank you.

Q. (By Mr. Kurylo.) I would like to have a little clarification on what you have cited. Are you citing floods on the main stem of the Missouri River or on the Floyd River only in connection with these?

A. These are in terms of the Floyd River.

Q. Only?

A. Only.

MR. KURYLO: Just wanted to have the record clear.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

MR. EDELMAN: We recall Mr. Glen Hopkins.

GLEN J. HOPKINS,

resumed the stand and testified further as follows:

DIRECT EXAMINATION
(Continued)

BY MR. STEIN:

Q. You will recall, Mr. Hopkins, that you are still under oath.

A. Yes, sir.

Q. Mr. Hopkins, I direct your attention to Government Exhibit No. 8, the Sioux City engineer's report, and ask you to refer to Plate 5 in that exhibit. This plate is the one that gives the names of the firms discharging industrial and other wastes to the Floyd and Missouri Rivers, the flow B.O.D. in pounds per day, suspended solids in pounds per day, and grease. Would you examine that plate? I would like to call your attention also to Government Exhibit No. 9, where the Public Health Service was required to make progress reports following the conference held in Sioux City. Will you tell us on the basis of the information you have whether the conditions described in this Plate 5 still prevail?

A. Based upon information available to me through progress reports given me by the State there are three changes in this plate. Our records indicate that the T & W Packing Company --

CHAIRMAN WILSON: Which company?

A. T & W -- is no longer in business. The Tri-State Produce Company, according to Plate 5, is included in the domestic data. Our records indicate that discharges from this plant still reach the river. And Plate 5 indicates for the Sioux City Stock Yards Company dry cleaning. Our records indicate that the drainage from the flushing of the hog pens at this establishment still reaches the Floyd River.

Q. (By Mr. Stein.) Thank you, Mr. Hopkins. Did you cover Allied Laboratories?

A. Allied Laboratories on this plate shows no flow.

Q. Thank you. Mr. Hopkins, does Government Exhibit No. 8 contain a description of a proposal for waste collection and treatment facilities for Sioux City, Iowa, and the industries located therein?

A. Yes.

Q. Have you examined this proposal?

A. Yes.

MR. DAVIS: Excuse me, Mr. Stein. To what table are you referring, on what page?

MR. STEIN: I am referring to the -- would you mind reading my question back and the answer?

MR. DAVIS: I can look at the exhibit and find out.

(Question read.)

MR. DAVIS: Thank you, Mr. Hopkins and Mr. Stein.

Q. (By Mr. Stein.) In your opinion, how much waste reduction will the construction and the placing in operation of this proposal achieve in terms of settleable and floating solids and coliforms?

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial, my objection as to competency going to both the witness and the testimony, there having been no proper foundation laid as to this witness's qualifications to answer these questions.

MR. STEIN: Mr. Hopkins was qualified as an expert earlier.

CHAIRMAN WILSON: I think the witness has been qualified. It will be received subject to the objection.

A. The proposal included in this exhibit provides for pretreatment of certain of the industrial wastes, as for example the collection and retaining of blood, effective grease removal equipment, the retaining of paunch manure, the find screening for removal of solids, and the dry cleaning of stock pens and yards. The basis of the design of the plant appears to be entirely consistent with the current standards recommended by the Iowa Department of Health, which insures an effective, efficient system. The combination of the pretreatment and the plant as proposed, in my opinion, would provide essentially complete removal of the floating and settleable solids and a high degree of removal of coliform organisms. I believe the type of plant is such that it would certainly be in the upper limit of coliform reductions as given in such standard textbooks as Imhoff & Fair, which is from 25 to 75 percent. The plant plus the waste control measures accomplished through the pretreatment steps that I mentioned should surely bring about a coliform reduction in the upper limit of that standard credited reduction.

Q. Thank you, Mr. Hopkins. As part of your official duties in carrying out the construction grant program authorized by Section 6 of the Federal Water Pollution Control Act, as well as your other duties under that Act as in Sections 2, 4 and 8, do you gather and analyze waste treatment plant cost data for plants in this area?

A. Yes.

Q. Do these include proposed as well as completed projects?

A. Yes.

Q. Can you tell us what your analysis shows in terms of per capita cost of the project proposed in Government Exhibit No. 8?

A. The exhibit on Page 28 lists the estimated cost of interceptor sewers as $5,297,388.00. The same report lists the estimated treatment cost as $1,902,100.00. That would be a total project cost of approximately seven and two-tenths million dollars, rounding it off to the nearest thousand dollars. Using the 1950 population of Sioux City as 83,991, that per capita cost would be approximately $85.00. Now, the report also includes information as to the cost to be allocated to industries and that is quoted as a million seventy-eight thousand dollars, which, if done in accordance with that phase of the plan, would reduce the cost to the City to $6,121,000.00, and using the same per capita population -- I mean the same 1950 population, 83,991, the cost per capita would be slightly less than $73.00.

Q. Does the waste discharge situation in the Floyd River present an unusual cost problem, in your opinion, Mr. Hopkins?

A. Yes. Yes, it does. The situation at Sioux City is somewhat unusual as compared particularly to other Missouri River cities in that the numerous sewage and industrial waste outlets discharge to the Floyd River over a great portion of

338-A

PLATE 5

TABULATION OF INDUSTRIAL SANITARY WASTES COMPOSITE DATA

SIOUX CITY, IOWA

INDUSTRY	FLOW	B.O.D		SUSPENDED SOLIDS		VOLATILE SUS. SOLIDS		GREASE		REMARKS
	AVERAGE OBSERVED GALLONS PER DAY	PPM	LBS/DAY	PPM	LBS/DAY	PPM	LBS/DAY	PPM	LBS/DAY	
ARMOUR & CO	3,237,000	1288	34,716	751	20,238	611	16,465	489	13,171	4 STATIONS - 3 DAY SAMPLING
SWIFT & CO	2,646,000	945	20,834	690	15,216	638	14,060	1084	23,890	2 STATIONS - 3 DAY SAMPLING
SMITH PACKING CO	24,000(2)	1210	242	780	156(3)	680	136	865	173	PROCESSING ONLY
RASKINS PACKING CO(1)	12,000(2)	1530	153	560	56(3)	540	54	1880	188	BEEF ONLY
SIOUX CITY DRESSED BEEF CO(1)	504,000	1450	6088	531	2230	512	2150	1777	7463	BEEF ONLY 1 STA.-2 DAY SAM
MEYER PACKING CO(1)	27,000(2)	1600	360	587	132(3)	564	127	1964	442	BEEF ONLY
T&W PACKING CO.(1) (A)	23,000(2)	1602	306	583	112(3)	563	108	1953	375	BEEF ONLY
SANITARY RENDERING CO.*	360,000	55	165	55	165					3-10,000 LB COOKER - 250 GPM * ESTIMATED
TRI STATE PRODUCE CO. **(B)**										INCLUDED IN DOMESTIC DATA
SWIFT & CO. DAIRY & POULTRY	31,000 13,000	678 963	175 104	376 565	97 61	337	87	171	44	7000 LB. BUTTER 2650 TURKEYS 1 STA.- 3 D. SAM
ALLIED LABORATORIES										NO FLOW
SIOUX CITY STOCK YARDS CO. **(C)**										DRY CLEAN
SIOUX CITY DRESSED PORK CO(1)	576,000(4)	400	1920(5)	292	1400(6)	271	1300(7)			PORK ONLY, ESTIMATED
TOTALS	7,453,000		65,063		39,863		34,487			

NOTES :

(1) KILL & DRESS ONLY - NO PROCESSING
(2) AVERAGE BASED ON WATER METER RECORDS
(3) ESTIMATED FROM KILL RECORDS & B.O.D
(4) BASED ON 400 GPM FOR 24 HOURS
(5) BASED ON 500,000 HOGS / YEAR = 1920 HOGS / DAY @ 1 LB. BOD / HOG
(6) BASED ON RELATIONSHIP OF LB. TOTAL SUSPENDED SOLIDS TO LB. BOD
(7) BASED ON RELATIONSHIP OF LB. VOLATILE SOLIDS TO LB. TOTAL SUSPENDED SOLIDS

ENGINEERING CONSULTANTS

BUELL & WINTER
SIOUX CITY, IOWA

HOWARD R. GREEN CO.
CEDAR RAPIDS, IOWA

NOTES BY PUBLIC HEALTH SERVICE: (A) NO LONGER IN BUSINESS. (B) DISCHARGES WASTES TO THE MISSOURI RIVER. (C) DISCHARGES DRAINAGE FROM FLUSHING OF HOG PENS TO THE FLOYD RIVER.

its length through the city, whereas usual municipal practice is to convey these wastes through the built-up portions of the city in a closed conduit leading to or near the river. Sioux City for many years has used the Floyd River as an open sewer and approximately a million and a half dollars of the total project cost is the interceptor sewer and pumping station along the Floyd River to correct that situation and get the sewage to the waterfront.

Q. If this situation did not exist, do you believe the per capita cost to Sioux City for the construction of this proposed plant would be considerably less?

A. It would be considerably less, yes.

Q. Have you made similar per capita studies for other Iowa cities?

A. Yes, I have.

Q. Have you prepared a table of your data?

A. Yes.

Q. Did you use about the same method of preparing this as you have for the one you described in coming to the Sioux City per capita estimate?

A. Essentially, although in certain of the projects actual contract costs were used rather than engineering estimates.

Q. Would you hand me a copy of your table?

MR. STEIN: I ask that this be marked for purposes of identification as Government Exhibit No. 28.

(Government Exhibit No. 28
marked for identification.)

Q. (By Mr. Stein.) Mr. Hopkins, I show you the tables marked Government Exhibit No. 28 for purposes of identification. Is this the table you prepared on the basis of using the method you have described previously?

A. Yes, it is.

MR. STEIN: I offer this in evidence, Government Exhibit No. 28.

CHAIRMAN WILSON: Any objection?

MR. DAVIS: No objection.

CHAIRMAN WILSON: Received

(Government Exhibit No. 28
received in evidence.)

Q. (By Mr. Stein.) Mr. Hopkins, will you give us a summary of these data?

A. Yes, sir. We have files for the State of Iowa for the operation of our construction grant program under Public Law 660. From those files were taken those projects that involved only the construction of interceptor sewers and sewage treatment plants. In other words, projects which included an enlargement of an existing facility, an existing sewage treatment plant, were excluded from this study. There were 31 projects in Iowa which involved new sewage treatment plants and these communities ranged in population from a few hundred up to fifty thousand. Of the 31 projects, the median per capita cost was $91.00 per capita. Now, of the 31 projects, 20 projects or 67 percent included -- I mean had per capita costs in excess of $73.00 per capita, and 11 of them had per capita costs 50 percent or more in excess of this amount. Nineteen projects had per capita costs in excess of $85.00 per capita.

Q. Would you refresh my mind again. What was the per capita cost estimate you made for the Sioux City project as proposed?

A. Excluding the cost allocated to industry, the per capita cost is approximately $73.00. Including the cost to be paid by industry, including that in the allocation per capita, it is $85.00.

Q. In these other Iowa City projects do you know of anything where industry will bear or is proposed to bear a substantial proportion of the costs?

A. The engineering documents and project documents available to us on many of these projects did not include a breakdown of costs allocated to industry and costs allocated to the city. Many of them are towns without industry, although several of them have industry of important segments. I do not have the information available, but total cost figures were used.

Q. Can you tell us the relative financial rating of Sioux City, Iowa?

A. A Triple "A" rating in the 1958 issue of Moody's, which I believe is the most authentic information I have.

MR. DAVIS: Move to strike the answer as not responsive, voluntary statement.

CHAIRMAN WILSON: Well, the answer may stand for what it is worth. It wasn't exactly responsive.

MR. STEIN: Well, we think this is a material fact to be considered by the Board.

MR. DAVIS: Certainly, but you have got to ask the question.

CHAIRMAN WILSON: May we have that question again, please?

(Question read.)

Q. (By Mr. Stein.) I will change that question to "Will you".

CHAIRMAN WILSON: Can you answer that question yes or no, Mr. Hopkins? Are you able to tell that?

A. Yes.

Q. (By Mr. Stein) Will you tell us that?

MR. DAVIS: Object to that --

A. A triple "A" rating in 1958 Moody's.

CHAIRMAN WILSON: Just a minute.

A. Oh, too many people asking questions.

MR. DAVIS: That is objected to as incompetent, my objection to competency going to both the witness and the testimony.

CHAIRMAN WILSON: Well, I think before you answer that question some further reference to the witness's qualifications along that line should be laid. He hasn't been qualified as a financial expert.

Q. (By Mr. Stein.) Mr. Hopkins, in your work with the Public Health Service in preparing cost data and studies as provided for in Section 4 of the Federal Water Pollution Control Act and Section 8 in the -- Section 6 of the Federal Water Pollution Control Act, are you familiar with -- are you responsible for coming up with evaluations of financial ratings?

A. In many cases, yes.

Q. Do you in those areas refer to the standard reference books?

A. Yes.

Q. In your experience which standard reference book would you refer to in this case, in finding the financial rating of Sioux City, Iowa?

A. We use Moody's as authentic information on that.

Q. Have you found Moody's in the past to be reliable?

A. We found it to be reliable.

Q. Is it generally accepted in the field?

A. In my opinion, yes.

Q. Will you tell us the relative financial rating of Sioux City, Iowa?

MR. DAVIS: That is objected to as calling for the opinion and conclusion of the witness, irrelevant and immaterial in its form; it doesn't take into account all of the factors involved.

CHAIRMAN WILSON: Received subject to the objection.

A. Triple "A" in the 1958 edition of Moody's.

Q. (By Mr. Stein.) Mr. Hopkins, I direct your attention to Section 81.9 of the regulations governing this hearing, in which the surgeon general of the Public Health Service is required, in addition to presenting evidence, to make recommendations as to remedial actions if he has such recommendations. Do you have such recommendations of the surgeon general, Mr. Hopkins?

A. Yes, sir.

Q. Will you make those to the Board for the surgeon general?

MR. DAVIS: May I ask one question prefatory to deciding whether to make an objection, Mr. Chairman?

What section of what?

MR. STEIN: 81.9, Title 42, Code of Federal Regulations.

MR. DAVIS: That is objected to as incompetent, irrelevant and immaterial.

CHAIRMAN WILSON: Received subject to the objection.

MR. DAVIS: Involving hearsay, certainly.

A. "It is recommended that:

"1. Sioux City and industries located therein, construct and place into operation municipal and industrial waste collection and treatment facilities which will abate pollution of the Missouri River.

"2. On or before May 1, 1959, each industry desiring to be served through the municipal system advise the City of the volume and character of wastes it proposes to discharge to the municipal system.

"3. On or before May 15, 1959, Sioux City, Iowa, instruct in writing its consulting engineers to proceed with final plans and specifications for adequate waste treatment facilities. If such action is not taken by the City, or if such instruction does not provide for service to industries located in the City, such industries shall initiate detailed planning for their own remedial facilities not later than June 1, 1959.

"4. On or before January 1, 1960, final plans and specifications for all such remedial facilities shall be completed and submitted to the Iowa Department of Health for review and approval.

"5. On or before March 1, 1960, such remedial works shall be placed under contract for construction.

"6. On or before March 1" --

MR. SAMSON: Will you hold that just a minute, Mr. Hopkins? On or before March 1, 1960, such what?

A. --"remedial works shall be placed under contract for construction."

MR. HERSHEY: That is cited 5?

A. Yes.

MR. SAMSON: Thank you.

A. "6. On or before March 1, 1962, construction of all such remedial facilities shall be completed and such facilities be in operation.

"7. Within 15 days after each date established in this schedule, Sioux City, Iowa, and each industry involved in this hearing advise the United States Public Health Service and the Iowa Department of Public Health as to their progress toward compliance with each step of the schedule applicable to them."

Q. (By Mr. Hershey.) Mr. Hopkins, I missed the date of Item 4. May I have that, please?

A. January 1, 1960.

MR. DAVIS: What was the last date, Mr. Hopkins?

A. On Step 7?

MR. DAVIS: Yes.

A. "Within 15 days after each date established in this schedule."

SECRETARY AYERS: Mr. Chairman, I would like to have a copy of what the witness has just read for my file, if that is agreeable.

MR. SAMSON: May I suggest that possibly if the Government had the facility, that they can furnish a copy of that to counsel involving the City and industry and members of the Board.

MR. STEIN: We would be happy to supply all the copies we have.

Q. (By Mr. Stein.) How many do you have there, Mr. Hopkins?

A. I have two extra copies.

MR. STEIN: Would you be interested in this?

MR. SHULL: Very much, Mr. Stein

MR. DAVIS: Before we proceed further, Mr. Chairman, I move to strike from the record the answer of the witness for all of the grounds set out in my objection.

CHAIRMAN WILSON: Motion denied. Received subject to the objection.

MR. SAMSON: Was that marked as an exhibit?

MR. STEIN: No, that is not marked as an exhibit. In this case Mr. Hopkins was speaking as a representative of the surgeon general complying with the regulations governing this public hearing and carrying out a duty given him by the surgeon general. The regulations, I think, are very clear.

That is all, Mr. Hopkins. We have no further questions, Mr. Chairman.

CHAIRMAN WILSON: You may cross-examine.

MR. DAVIS: Do you want to take your break early or go ahead?

CHAIRMAN WILSON: Well, would you prefer to have a recess now? I had planned to take it a little later.

MR. DAVIS: I wonder if we might take five or ten minutes now? I am going to have a little difficulty throughout the day. As you probably are aware, I don't have the facilities available to me on this witness thing. But with Mr. Ristau's testimony coming in as it did, I now can cut out two more witnesses I was going to call, so I would like to do that now.

CHAIRMAN WILSON: All right, we will take our ten-minute morning recess.

(RECESS)

CHAIRMAN WILSON: Proceed, gentlemen.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Hopkins, going back to the first day of our testimony, you started in by describing to the Board your duties in connection with this matter, some of which only I would like to review to some small extent. Your present position with the United States Public Health Service is what?

A. Regional Engineer.

Q. And how long have you held that position?

A. Approximately three years.

Q. And prior to that what was your position?

A. Officer in Charge, Missouri Drainage Basin Office, Division of Water Pollution Control, Public Health Service.

Q. And both of these positions you performed in what city?

A. Headquartered in Kansas City.

Q. How many years have you been in Kansas City with the Public Health Service?

A. Since July of '48.

Q. And prior to that where were you located?

A. One year prior to that at Ann Arbor, Michigan, for approximately one year prior to that Washington, D. C.

Q. Before that were you with the State of Missouri?

A. I was with the Missouri State Board of Health from the fall of 1937 to the summer of 1943.

Q. And since '48 you have been headquartering out of Kansas City and I take it you have dealt continuously with this problem of pollution on the Missouri, is that correct?

A. I have other responsibilities than pollution control, but I have -- it has been a part of my activities since that time.

Q. But no one else in the service has been doing it; it has been your job to handle these matters in your capacity with the Public Health Service?

A. I am not quite sure I interpret your statement, Mr. Davis. It inferred that no one else in the Public Health Service was working on this matter.

Q. No, I didn't mean to infer that. What I am trying to establish is that at least since 1948 you have dealt with this subject?

A. Yes, sir.

Q. You are thoroughly familiar with all of the matters in connection with the state conferences and reports that were published, and so forth?

A. It would depend upon a definition of "thoroughly". Reasonably well, yes.

Q. I would agree with that. Now, Mr. Hopkins, you testified during the first day, as I recall, concerning the chronology of this thing commencing in 1950 when certain studies were made which resulted in the Water Pollution Series No. 47 being published, is that correct?

A. Yes.

Q. Now, I understand from counsel for the Government that they feel that that is not in evidence, but it has been referred to repeatedly here and I would take it that you are reasonably familiar with the contents of it?

A. Reasonably. I have not reviewed it for a couple of years and I can't vouch for any particular part of it from my memory, but it is right here and can be reviewed.

MR. DAVIS: Excuse me a second. Do you have something?

MR. STEIN: No, no. Maybe to clarify the record, I don't know that we indicated we felt there was none in evidence. All we did was indicate that it just was not in evidence as a matter of fact.

MR. DAVIS: May it be stipulated, Mr. Chairman, then, that Water Pollution Series No. 47, which was an exhibit to the conference report which you admitted, is not in evidence?

MR. EDELMAN: I think it can be stipulated that the Government did not introduce it in evidence at this hearing.

CHAIRMAN WILSON: Well, I think the record will show that it is not in evidence.

MR. DAVIS: Fine. Just so it so shows. And therefore will not be considered, of course, by the Board in its deliberations?

CHAIRMAN WILSON: Nothing but what is in evidence will be considered by the Board in its deliberations, except, of course, matters of which we may take official notice as the courts take judicial notice.

Q. (By Mr. Davis.) Following the Omaha meeting in September of 1953 where the states agreed to take over, your first action with reference to the City of Sioux City, Iowa, and the industries in it was during the year of 1954?

A. Was that a question, Mr. Davis?

Q. Yes.

A. I am sorry, I thought it was a statement. I didn't catch the question.

Q. Your first action you took with reference to the City was during '54 which culminated in the hearing held on Thursday, October 7, 1954, before the Commissioner of Health for the State of Iowa?

A. That was not an action of the Public Health Service.

Q. That was not recommended by you?

A. No, sir.

Q. Do you know how it came about?

A. Yes, I believe I do.

MR. SAMSON: Can I have the date of that, Mr. Davis?

MR. DAVIS: October 7, '54.

MR. SAMSON: Thank you.

A. You are speaking of the hearing in Des Moines?

Q. (By Mr. Davis.) Yes. I understood you to say on the first day -- perhaps we are talking about different things -- that following the conference and the '53 report, which is the Exhibit 4, your blue book, that the states were requested to go ahead with these proceedings.

A. I didn't say requested. I think I said recommended.

Q. And who made the recommendation?

A. The Public Health Service at a meeting of the state sanitary engineers in Omaha, Nebraska, September 15, 1953, brought the matter of implementing the recommended program as contained in the Surgeon General's comprehensive program at --

Q. Now, you say the Public Health Service did that. Who --

A. I did it.

Q. You did it?

A. Yes, sir.

Q. Glen Hopkins?

A. Yes, sir.

Q. That is what I am trying to establish. Now, --

A. In my official capacity.

Q. Of course. In October of '54 the hearing was held before the Iowa Commissioner of Public Health at which you appeared and testified?

A. Yes, sir.

Q. And the basis of your testimony concerning the bacterial loading of the river, and so forth, was based on this report Series 47?

A. Yes, sir.

Q. And the figures that you gave there, of course, were not the same as those given to us by Mr. Kittrell yesterday?

A. That is quite correct.

Q. And you heard Mr. Kittrell and I discuss yesterday that his present figures are roughly one-third of the old figures that we had been using, correct?

A. Yes, sir.

Q. In other words, they are 66 percent less than the figures that we have been using before? If I am wrong, correct me.

A. I do not have in mind the exact percentage. I would say they are substantially less than the previous figures.

Q. Well, you were here and heard what he agreed to on that?

A. Yes, yes.

Q. Now, at that hearing before Dr. Zimmerer, was there any reference made at all concerning the alleged problem of taste and odor of drinking water in Omaha and St. Louis?

A. I would have to review the transcript of the hearing to ascertain that.

Q. All right.

A. I do not have specific knowledge that taste and odors were mentioned.

Q. In fact, I will leapfrog right ahead through all of these other procedures we have gone through. In your meetings with the City Council the City Manager and the representatives of the City, it was not until this hearing commenced that that was urged as a reason why we should have this disposal plant, is that correct?

MR. EDELMEN: Mr. --

CHAIRMAN WILSON: Just a minute. Are you interposing an objection?

MR. EDELMAN: I am interposing an objection to the form of the question. Counsel stated that the presence of taste and odor problems in the Omaha public water supply is being urged as a ground for something. I submit that all we have done at this hearing is to present the facts as our witnesses have seen them and we have not urged that as a ground up to this point, at any rate.

CHAIRMAN WILSON: Well, the witness may answer the question as far as he knows.

MR. DAVIS: I would like to stipulate -- we agree, Counselor, we don't think that it is a ground for anything you have requested here. Is that your claim?

MR. STEIN: We haven't claimed anything.

MR. DAVIS: Your witness just read certain recommendations of the surgeon general. What was it based on, taste and odor or health?

MR. STEIN: I believe the Surgeon General made recommendations under the Federal Act to the Board under the regulations. He is directed by the Secretary of Health, Education and Welfare to make recommendations. That is what the Surgeon General did.

MR. DAVIS: Are you now telling the Board that they need not consider the testimony concerning taste and odor of water?

MR. EDELMAN: Mr. Chairman, we do not intend to engage in this argumentative discussion to prolong the length of the hearing, and rather than continue something that seems quite fruitless at this point, we do not interpose an objection to the form of the question. We withdraw the objection.

CHAIRMAN WILSON: Well, the Chair will rule that this witness may state what he knows about the raising of this issue of taste and odor.

A. To my knowledge, going back as far as 1948, at every discussion that the Public Health Service has had with the states concerning the interstate problem of the Missouri River, taste and odor problems have been recognized.

Q. (By Mr. Davis.) Is it your position here, Mr. Hopkins, that you are recommending this expenditure of seven million and some dollars by the people of Sioux City on the basis that it would improve the taste and odor of the drinking water in Omaha and St. Louis?

A. I am not recommending that expenditure on any one single purpose.

Q. My question was -- All right, you have answered it in this way, that that is not the sole basis of your recommendation?

A. That is right.

Q. Now, going back again on October 7, '54, and the hearing before the State Commissioner, was there any discussion of economic feasibility at that hearing?

A. Again I would have to review the transcript. I have no memory of specific discussion.

Q. In the hearing?

A. Yes.

Q. You have testified here this morning concerning, apparently, our ability to borrow money, our financial rating, is that correct?

A. Would you repeat that question?

Q. You have testified concerning the City's ability to borrow money, in effect.

A. I testified that you had a good rating.

Q. Were you aware at that hearing in Des Moines of the City's bonded indebted limitations?

A. If I was aware at that time, my memory is rather void as to that particular aspect.

Q. I will be specific, then, Mr. Hopkins.

A. Fine.

Q. Do you recall on the noon of that day having lunch with City Manager Hoisington and myself, having that problem and the complication of the Floyd River channel improvement problem and its cost to the City and the fact that we had just lost a packing plant from Sioux City explained to you and your saying to City Manager Hoisington and myself that the cost and where we got the money was no concern of yours?

A. I remember some general social discussions at a lunchtime and I think that is a proper statement of my position. I can not be responsible for your plans of financing and that is not my business.

Q. That is correct. So that despite the knowledge that was brought to you there in 1954 of that, you have not taken that into account in any of these activities?

A. I have taken costs into consideration in every analysis of any sewage treatment problem in my program.

Q. But what knowledge or to what extent have you taken into account the economic feasibility of it?

A. I am familiar with the estimated costs of both projects. I am familiar with the laws of Iowa as they relate to the financing of sewage treatment projects, and I know that they provide for revenue bonds based upon sewer service charges or general obligation bonds without a vote of the people.

Q. But you have no present knowledge, then, concerning our inability to do that?

A. I know of no reason why you are not able to do that, no.

Q. And from your statement starting with our visit in October of '54 in Des Moines, you are not interested?

A. I didn't say I was not interested.

Q. You say it is no concern?

A. I said it is not my business, not my responsibility.

Q. All right. In the hearing conducted here last July -- I beg your pardon. In the conference which was conducted by Mr. Stein here last July, the transcript of which is in evidence over our objection, were you then advised concerning the City's financial problem?

A. That was a part of the discussions, yes.

Q. And you still felt that that should have nothing to do with the recommendation that came out of the conference?

A. As I remember that conference, Mr. Davis, no specific information was given at the conference.

Q. And you were not aware of it?

A. Sir?

Q. You were not aware of it?

A. I was not aware -- I was aware of the fact that no specific information was given us at the time.

Q. But were you aware of our difficulties at that time?

A. I realized that a program of flood control was under consideration at Sioux City which would require certain local expenditures, yes.

Q. Did you feel that that might affect the ability of the City to comply with the recommendations that were made at that conference?

A. I felt that it might affect the desire of Sioux City, not basically the ability.

Q. Not their ability?

A. Yes, sir.

Q. Now, in preparing this matter for presentation to this Board, Mr. Hopkins, what has been your function in it as far as the securing of evidence?

A. I would like --

MR. EDELMAN: Mr. Chairman, I object to that question. It is incompetent, irrelevant and immaterial as to what Mr. Hopkins' function was. He is a witness called by the Government and I think a question like that is highly improper.

CHAIRMAN WILSON: May we have that question read, please?

MR. DAVIS: Do I understand counsel to say that because the witness was called by the Government that he is not subject to the usual test as to credibility?

MR. EDELMAN: No, not at all.

MR. DAVIS: All right.

MR. EDELMEN: Not at all.

(Question read)

CHAIRMAN WILSON: He may answer. Objection overruled.

A. I participated in the planning of the study that was described by Mr. Kittrell and I assembled and reviewed certain information available to me on the prior proposals of the City, their reports of progress, work information obtained from the state agency through our cooperative working relationship that is outlined in our law, reviewed information on assessed valuation, bonded indebtedness, and so forth.

Q. (By Mr. Davis.) Was this preparation of the evidence under your supervision?

A. The preparation of the evidence?

Q. Like the attendance of the professor from St. Louis and the water man from St. Louis and Lexington, and so forth?

A. I did not supervise the preparation of their material, no, sir.

Q. Did you know -- did you arrange for their being here?

A. Yes.

Q. Now, Mr. Hopkins, at this point in the record, there is not one single word of evidence that the drinking water at Omaha has ever been impure. Am I to assume from that that you were unable to locate anybody who had experienced a waterborne disease because of drinking Omaha water?

A. I don't believe that the Public Health Service ever alleged that fact and I made no effort to obtain information to support that contention.

Q. Now, in connection with your work in this matter and the preparation of this case for presentment to this tribunal, were you able to find any one person who experienced or suffered from a water-borne disease because of recreation activities such as water skiing, and so forth, in the reach of the river between Sioux City and Omaha?

A. Yes.

Q. Would you name the date and the name and the place?

A. That was covered by previous testimony, a witness who was here, and I think the record has already shown that. I do not have the date at mind, but it is in the record, I believe.

Q. A water skier?

A. Four hunters, I think, as you remember.

Q. Oh, who drank river water?

A. Yes.

Q. All right, Mr. Hopkins. Does the Public Health Service recommend that the rivers of the United States be cleaned up to the extent that they are suitable without chlorination treatment for drinking water?

A. I didn't say that. I --

Q. I am asking you.

A. I answered the question you asked me.

Q. All right. Now, try the next question.

A. All right. Would you repeat it?

Q. Does the Public Health Service recommend that the streams and rivers in the United States be cleaned up to the extent that they can be used for drinking water without treatment?

A. No, sir.

Q. Do you know of any major river in the world where the water can be so used?

A. I am not familiar with all the rivers in the world.

Q. All right. Now, the testimony that you brought in here was of hunters who drank the water?

A. Yes, sir.

Q. Would you deem that advisable in any river, for anybody to drink the water?

A. I think --

Q. A major river, now.

A. You say any river?

Q. Any major river.

A. The headwaters of the Missouri River I think it would be perfectly safe to drink without --

Q. How far up?

A. Up above Three Forks, Montana. I have myself drunk from the Madison River. I was thirsty.

Q. Apparently so were these hunters.

A. Yes, sir.

Q. Now, I will get back to the line of questioning I was pursuing. You have heard the statements by these witnesses, expert and otherwise, that there is a hazard associated with recreation activities in this branch of the -- reach of the river by water splashing on water skiers or their hands being cut and then immersed in water. Can you state to this Board one instance by name, date and place where anything like that has occurred?

A. I believe that there is a signed affidavit to that effect, if you would like to have it introduced in the record as evidence.

Q. Have you got a witness here who can say that that happened?

A. I didn't say that I did. I said we had a signed affidavit.

Q. How many times -- how many such affidavits do you have?

A. One.

Q. One. You heard the testimony here concerning the Government expenditure of money at De Soto Bend and I believe the gentleman said that it was the function of the Public Health Service insofar as pollution matters were concerned. Have you in your official capacity remonstrated with these people about going ahead with the project with the river in its present condition?

A. We have not. We have not yet been consulted on it.

Q. Mr. Hopkins, well, apparently, then, the danger isn't real enough that you volunteer this information?

A. I think that both the Park Service, the Fish and Wildlife Service and ourselves are assuming that pollution of the river will be abated in reasonable time.

Q. Meanwhile they have gone ahead and spent the twenty million dollars, whatever the figure was?

A. I don't think they have gone ahead and spent the twenty million dollars. They have completed certain plans. They have acquired some lands. I don't think the expenditure is any ways near twenty million dollars.

Q. Mr. Hopkins, it is within your authority and your position to endeavor to enforce this matter of cleaning up the pollution in this Missouri River, is that correct?

A. Would you repeat that question?

Q. Is it part of your job to enforce the cleaning up of the river, do what you can?

A. The Public Health Service has certain responsibilities regarding abatement of pollution originating in one state which is detrimental to health or welfare in another state.

Q. Right. Have you in connection with your official duties, or anyone in the Public Health Service, taken up the matter with the Corps of Engineers or the Army Air Force or whoever is in charge of the sewage disposal at the Sioux City Air Base?

A. Yes, I have.

Q. And when was that done?

A. That has been done on numerous occasions.

Q. Commencing when?

A. To the best of my knowledge the first contact with the air base was about -- or the Department of Defense was about three years ago.

Q. And have you endeavored to get them to put in a disposal plant?

A. We have had discussions with them, yes.

Q. Other than discussions, what action have you taken?

A. We have recommended that they proceed with abatement measures. We have asked them to do it and we have been given certain information in that regard.

Q. Has the Air Force or the Corps of Engineers, whoever is in charge of it, entered into any contracts so to do?

A. With me?

Q. No, with contractors to build a sewage disposal?

A. No, they have not yet entered into contracts.

Q. The next question I am going to ask you is not restricted information as was indicated by one of your witnesses, but are you aware that the civilian and Air Force personnel using the base and the toilets on it, and so forth, averages about 2750 people?

A. I do not have that information. I have information only as to the volume of sewage flow, which is 140,000 gallons per day, approximately. Part of that includes the City's airport, the town of Sergeant. The wastes in total are 140,000 gallons a day.

Q. And when was --

MR. STEIN: Pardon me. Mr. Hopkins, I should remind you, and I know you want to co-operate, but the regulations of the Defense Department require figures as to flow, sewage flow from restricted installations, to be kept restricted because they can be used as an indication of the population on the base. Now, if the first is so I think the second is too, and I leave it up to you whether you want to withdraw that or leave it in the record since it has already been stated.

A. I would prefer to leave it in the record.

MR. STEIN: All right.

A. Because it affords an excellent comparison, the 140,000 gallons compared to the more than 15 million gallons of sewage at Sioux City.

Q. (By Mr. Davis.) Now, Mr. Hopkins, you are stationed in the City of Kansas City.

A. Yes, sir.

Q. What method of sewage disposal is presently used by the City of Kansas City, Missouri?

A. A principal part of their wastes are discharged to the Missouri River without treatment. Certain areas in the City that form a rather significant part of the total population have secondary treatment.

Q. Would you know the amount in population equivalent discharged by Kansas City, Missouri?

A. It is in the neighborhood, expressed in population equivalents, of around 800,000, if my memory is correct.

Q. What is the source of the drinking water in Kansas City?

A. The Missouri River.

Q. What is the source of the drinking water in Kansas City, Kansas?

A. The Missouri River.

Q. What method of sewage disposal is currently presently used by the City of Kansas City, Kansas?

A. Discharging raw sewage to the Kansas and Missouri Rivers for their principal part of the City.

Q. Would you know the population equivalent, or any measure that you wish to use, of the amount of sewage that Kansas City, Kansas, discharges into the Missouri River?

A. Approximately the same amount of population equivalents as Kansas City,Missouri.

Q. Now, one of the witnesses that the Government used was Mr. Hargedon, or that is my memory, the gentleman from St. Louis?

A. Hartung.

Q. Hartung, yes.

A. Yes.

Q. You heard his testimony concerning the Lexington, Missouri, water plant?

A. Yes, sir.

Q. That Lexington, Missouri, is how many miles?

A. Forty to fifty miles downstream from Kansas City.

Q. River miles from the Kansas Cities --

A. Yes.

Q. -- downstream?

A. Yes.

Q. Are you aware that the coliform bacterial count on an average monthly basis, the most probable number, at the Lexington, Missouri, plant has been in excess of one hundred thousand?

A. I know it is quite high. I would accept that figure.

Q. Have you any evidence to indicate that Lexington, Missouri, and Mr. Hartung and his company have been unable to purify the river water and use it for human consumption on any occasion so as to prevent the onset of water-borne diseases in the community of Lexington, Missouri?

A. I know that they found it so difficult -- so impossible to purify on occasions that they shut their plant down and waited until river conditions improved.

Q. I am aware of that, too. But, Mr. Hopkins, their water supply in their mains, well, since your '52 report, the last eight years, as Mr. Hartung said, the water supply has been approved by the Public Health Department of the State of Missouri, has it not?

A. Yes.

Q. Has it also been approved by your department?

A. No, sir.

Q. Because it is not used in interstate commerce, is that correct?

A. Yes, sir.

Q. Would it meet the requirements of you if you were called upon to approve it?

A. I do not have available data that would enable me to answer that. I have every reason to believe that it would meet Public Health Service drinking water standards as they relate to coliform bacteria.

Q. Where is the Kansas City, Missouri, water intake located with reference to the Hannibal Bridge?

A. Several miles upstream.

Q. Do you have any information to indicate what the average coliform bacteria count figured on this MPN basis has been at the water intake for Kansas City, Missouri, for the past eight years?

A. It has been quite high. I couldn't quote you a figure. I believe you probably have it in the book there in front of you.

Q. I have Kansas City, Kansas, which is 70 thousand.

A. They are approximately the same. The intakes are just at opposite sides of the river.

Q. What type of chlorinating equipment or water purification equipment is used in Kansas City, Missouri, if you know?

A. What type of equipment?

Q. Yes. Comparable to Omaha's?

A. Yes.

Q. And in accordance with what these experts testified, it should be in a modern-day plant, it is up to date?

A. Any modern up-to-date plant using Missouri River water below the first major city.

Q. You heard the testimony of Dr. Walton that within the last twenty years, and he may have been in error by one, there is no record of any water-borne epidemics or diseases being distributed through public water supplies?

A. I do not remember him making that statement. I may have been out of the room at the time.

Q. Well, I will put it this way. Has Kansas City, Missouri, or Kansas City, Kansas, experienced any breakdown in their water purfication equipment so that disease has been spread through the population?

A. There has been no epidemiological studies made of any incident of sickness along that line.

Q. Well, you have lived there during that period of time?

A. Yes, sir.

Q. Have there been any?

A. You are asking me a question now?

Q. Yes.

A. In my opinion, yes, there has been some.

Q. Were they due to breakdowns in the equipment?

A. I could not say.

Q. Well, how often has the equipment broken down in Kansas City?

A. I have no record of that information. I only know that the chlorine equipment manufacturers have full-time personnel to answer mechanical calls in the maintenance of chlorinators and they are quite busy.

Q. Well, you will recall the testimony concerning the Omaha plant involving the danger of breakdown. What I am trying to get at is a real and apparent danger, and in this way has it ever happened and, if so, where and what were the results, along the Missouri River?

A. It is unreasonable for me to even try to assume that there have not been chlorination failures at Missouri River water plants. They may have been short term. We would hope that they are under extremely competent supervision and having duplicate equipment, and so forth. But as many chlorinators as do fail in water plants, it is inconceivable to me that some such difficulty has not occurred.

Q. Can I safely assume, however, that is there had been competent, credible evidence of desease which resulted in an epidemic being spread through these water purification systems and breakdowns that you would have had it here for this Board?

A. I think that it is even unreasonable to assume that an epidemiological study and report would have been made had there been such a breakdown. In all probability it would have been short-term sickness that the person wouldn't have gone to a doctor, it wouldn't have been reported, and even the state health authorities would not have known it.

Q. So that as far as Omaha, with its brand new equipment, is concerned, your department is fearful that there may be a short breakdown and someone will get ill but they won't have to go to the doctor, that is the extent of it, isn't it?

A. No, that is not our fear.

Q. All right.

A. It is --

Q. Do you have any evidence, again, of breakdown which resulted in reportable illnesses in using modern equipment?

A. No, sir. You qualified that "reportable illnesses"?

Q. Right.

A. Yes.

Q. You have none?

A. That is right.

Q. So that when Dr. Walton, if I heard him correctly, said that there were no reports in the last 19 years of such, that meets with what your knowledge is too concerning this specific Missouri River basin, doesn't it?

A. I didn't hear Dr. Walton's statement. I did hear Mr. Clark's statement, that had some more recent information on that.

Q. Now, going up the river from the Kansas City, Kansas, plants, the next major water intake of any consequence is at Leavenworth or Atchison?

A. Leavenworth is the first upstream from Kansas City.

Q. Now, that falls below -- fairly closely below St. Joseph, Missouri, is that correct?

A. Atchison intervenes between the two communities.

Q. Both Atchison and Leavenworth are below St. Joe?

A. Yes, sir.

Q. How far is it riverwise between Kansas Cities and St. Joe, roughly?

A. Sixty to eighty miles.

Q. Sixty to eighty miles. Do Atchison and Leavenworth use water from the Missouri River for drinking purposes?

A. Yes, sir.

Q. What sewage disposal means do they take?

A. Atchison and Leavenworth?

Q. Yes. If you know.

A. They have their contracts about ready to award for sewage treatment.

Q. My question is what are they using now?

A. What are they using now?

Q. Yes.

A. I believe they discharge without treatment.

Q. You see, the reason, Mr. Hopkins, that I want to limit it to that, I have heard this "contract about to award" for six years, so every time I ask you, I want to know what the situation is now.

A. You just make that clear and I will do my best to answer.

Q. All right, sir. Now, St. Joe, how does it dispose of its sewage?

A. Untreated to the Missouri River.

Q. And it has done so for a number of years?

A. Yes, sir, far beyond my memory.

Q. Where do they get their drinking water?

A. From the Missouri River.

Q. As far as Atchison and Leavenworth are concerned, the average coliform count at their water intakes in the last eight years has far exceeded the figures we were given here yesterday for Omaha, is that correct?

A. Without doubt.

Q. Do you know of any breakdowns in their water purification equipment?

A. I do not have specific information, no, sir.

Q. Is the drinking water from those plants approved by the State of Kansas, at least?

A. I do not know. I have no reason to believe that they are not.

Q. Do you have any information as to what the pollutional load is that is discharged into the Missouri from St. Joe?

A. About the same as Sioux City, very comparable as to size and industry and I believe you are quite familiar with those figures.

Q. And at St. Joseph the bacterial loading of the river is already 26,000, is it not?

A. In that range, yes.

Q. Compared to the 1100 here at Sioux City?

A. I am not sure that the 26,000 is a current figure at St. Joe. I do not have better information to offer. I did not bring that with me.

Q. Are they cited to appear before a Board such as this in St. Joe?

A. They are not.

Q. Are they also -- have they had difficulties in keeping up with their scheduled program?

A. Yes, sir.

Q. Generally how many years behind are they, or months?

A. Well, the original target schedule for St. Joe was exactly the same as for Sioux City, so they are approximately one or two years, as the case may be.

Q. And again within 60 to 80 river miles there are four major cities below St. Joe taking water from the river, correct?

A. Yes, sir.

Q. Now, as far as the City of Omaha is concerned, do they dump a portion of their sewage into the Missouri River, at least?

A. Yes.

Q. You have no quarrel with the testimony, and I may have these names wrong, of at least their public safety engineer who testified here concerning the amount they dump into the river?

A. I am sure that -- Well, I didn't hear Mr. Fisher's testimony.

Q. Yes, Fisher.

A. I am sure that he had accurate information.

Q. Their present plans, according to his testimony, are to build an interceptor in in the north part of the city to pick up sewage from the northern residential districts so that it may be dumped below the Council Bluffs water intake but still into the Missouri River?

A. That is the first step of their waterfront program, yes.

Q. And that is all that they can do at this moment so far as funds that have been authorized by the people of Omaha, is it not?

A. That is correct.

Q. Now, the effect of that, Mr. Hopkins, in your opinion, would be to relieve Council Bluffs in its water plant from having the sewage dumped in a few miles above it, is that correct?

A. That is an integral part of their planning. That is why they gave it first priority.

Q. But it is still going to be dumped into the river and still go down to St. Joe, Atchison, Leavenworth, Kansas City, correct?

A. Until further steps in their improvement program are completed, yes.

Q. Right. What is the status of the enforcement procedures against the City of Omaha by your department?

A. None at all.

Q. None at all?

A. We did have a conference there in June of '57. No further enforcement actions have been taken.

Q. They have missed a couple of dates in their schedule.

A. Yes, sir.

Q. Would you know the total pollutional load which they place in the river at Omaha?

A. It is in excess of a million population equivalents by our last data.

Q. In excess of one million?

A. Yes.

Q. You testified the first day of the hearing in introducing these exhibits concerning the condition of our waterfront where the sewers discharge in some detail. Except -- strike that. Is there a great deal of difference generally between our waterfront and Omaha's and St. Joe and your City of Kansas City?

A. The situation is much the same except for the Floyd.

Q. Except for the Floyd?

A. Yes.

Q. So so far as the visible evidences of raw sewage, the sludge banks, and so forth, it is pretty much the same from Kansas City up through Sioux City?

A. Essentially the same.

Q. You wouldn't want the record to show or there be any inference in it that we are unique in that?

A. No, sir.

Q. How many years have these cities used the Missouri River as a depository for sewage, to your knowledge?

A. Ever since they have had sewer systems. I can't give you the date of their initiation of sewer systems.

Q. Well, we celebrated our centennial several years ago. It is bound to be over a hundred years, is it not?

A. That is correct.

Q. Would you feel that the condition here in Sioux City has been worsened in the past several years or not?

A. In my opinion, yes.

Q. Yes. It has been worsened?

A. Yes.

Q. In the past seven years?

A. Yes.

Q. In your Series 47 insofar as Sioux City is concerned, the average bacterial count coliform most probable number at the Corps of Engineers yard below Sioux City was in excess of five million in this publication which you have used for the past four years. As I understood your testimony, and I am subject to correction, or, that is, your case as put in here, the first testing stages down there would indicate that the average coliform content was 35 thousand, so as between these two figures that you have used, there is a change from approximately five million down to 35 thousand.

A. You didn't ask me if the coliform situation had worsened.

Q. All right.

A. You asked me if the pollution situation had worsened.

Q. All right, has the coliform situation improved?

A. Yes.

Q. Graphically, hasn't it?

A. I wouldn't say drastically. I don't think we have to the extent that the figures you used would illustrate because I don't believe those are identical sampling points, but I think we have brought out in our discussions already that the coliform pollution is less than during the earlier studies.

Q. Surely not after all these years that we have enjoyed this litigation as between us, you are not now questioning the accuracy of the figures in this Water Pollution Series No. 47?

A. I think they were quite accurate.

Q. At that time?

A. They were taken under far different conditions than exist today.

Q. Well, may I infer, at least, from that that the conditions have improved?

A. You may --

Q. Insofar as coliform organisms?

A. I think that our discussions have already pointed out in this that coliform data obtained recently is substantially less than was reported in previous studies.

Q. Which studies were used before the State of Iowa and the conference board here last July and in all the intervening times in presenting this matter to the City of Sioux City, were they not?

A. Yes.

Q. So the conference recommendation in last July, which has been admitted in evidence over our objection, was based on that earlier data?

A. Those recommendations were not based on coliform data. They were based on many factors, including coliform data.

Q. Which had been agreed to in advance of the hearing?

A. Which had been documented in federal-state cooperative reports, as, for example, Water Pollution 56, an exhibit at this hearing.

Q. Now, as I understand, this matter in this hearing has to do with water pollution control as concerning pollution of interstate waters of the Missouri River between Gavins Point Dam, South Dakota, and Omaha, Nebraska. The City of Vermillion, South Dakota, is within that reach of the river, is it not?

A. Yes, sir.

Q. Would any alleged pollution by the City of Vermillion and the efforts to abate it come within your jurisdiction?

A. Yes, sir.

Q. Were you present before the hearing when the, well, to me moving, but when the statement was made to the Board by Dean Patterson, the mayor of the City of Vermillion?

A. Yes.

Q. In which he mentioned that pressure had been applied to them to do this and he wasn't in complete accord with the emergency? You heard his statement?

A. Yes.

Q. Are you acquainted with the means of coercion, if any, that were used to get the town of Yankton -- rather, Vermillion, South Dakota, to put in its sewage disposal plant? Was it state action, federal, a combination of both, or what?

A. It has been the same as every other city along the Missouri River. State action with liaison in consultation with the Public Health Service as provided for in our federal law, which gives states primary responsibility.

Q. Are you familiar with the cost per capita of the sewage disposal plant that is going into Vermillion?

A. I do not have the figures readily at my disposal. We have the information in our office.

Q. Would it be comparable to Sioux City's and others?

A. If the costs for separating storm and sanitary sewers are excluded, I would expect it to be less, but if they include the cost of separating storm and sanitary sewers, I think it would be quite comparable.

Q. You heard Mr. Kittrell's testimony yesterday concerning the contribution from Vermillion, South Dakota, measured in coliform organisms to the Missouri River, did you not?

A. Yes, sir.

Q. As I recall it, he said that there was one coliforn organism per hundred milliliters of water.

A. I don't believe that was his statement.

Q. All right. What was it?

A. I believe that his statement was that the coliforms added to the Missouri River through the Vermillion River below Vermillion increased the coliform MPN in the Missouri River by about one.

Q. By about one?

A. Yes.

Q. And, of course, we are dealing with this basic figure of five thousand being the objective?

A. Yes.

Q. Mr. Hopkins, do you in all sincerity believe that the intent and purpose of this law is carried out in forcing a community to spend that amount of money to take one lousy coliform bacteria out of the Missouri River?

MR. STEIN: Just a moment.

A. I think this law is much broader in its objectives than one lousy coliform.

CHAIRMAN WILSON; Just a minute, there has been an objection made.

MR. STEIN: Just a moment. I don't think Mr. Hopkins is in a position to interpret what the intent of this law is. He is put on the stand to give the Board a factual description of conditions here, but I don't think we can call on Mr. Hopkins to -- properly call on him to interpret the statute.

MR. DAVIS: I didn't get the technical objection.

CHAIRMAN WILSON: Well, are you pressing the question, Counselor?

MR. DAVIS: Yes.

CHAIRMAN WILSON: Do you want that question answered?

MR. DAVIS: Yes, I am interested in this man's motives.

CHAIRMAN WILSON: The witness may answer, subject to the objection.

A. Would you repeat your question or would the reporter read it back?

(Question read.)

MR. DAVIS: I might state that in the use of the word "lousy" I was accepting Mr. Clark's testimony yesterday, but if that is offensive, I will take it out.

A. In reply to the question, in my opinion, sewage treatment at Vermillion, South Dakota , is entirely consistent with the intent and purpose of the law under which the federal program is carried on. I believe that I should in fairness tell you, I think that its purpose and objectives are much broader than coliform.

Q. (By Mr. Davis.) Do you think that the addition of one coliform bacteria per hundred milliliters to the load of the Missouri River endangers the health and welfare of people of other states?

A. I think that one coliform is a fair proportion of the responsibility that Vermillion bears to the nation as a whole or the region as a whole.

Q. My question is this, would that endanger, that one coliform addition, will that endanger the health and welfare of people in other states?

A. I won't say that it won't. It is another coliform and is a part of the total and it might possibly be an E. typhosa.

Q. In other words, it might possibly be the guilty one?

A. Yes, it just possibly might be.

Q. In connection with Vermillion, South Dakota, and with Sioux City, Iowa, have you ever had any figures as to the cost benefit ratio to the people of the communities involved?

A. No, I have never heard of a cost benefit ratio applied to the broad field of sewage treatment.

Q. You see, Mr. Hopkins, we deal with two different branches of the government. The man who preceded you on the stand does.

A. Yes, sir.

Q. Now, would you have any idea as to the cost benefit ratio in Sioux City?

A. Yes, I would have some ideas. I think it would be extremely favorable.

MR. DAVIS: I withdraw the question. I have no further questions, Mr. Chairman.

CHAIRMAN WILSON: Does the Government have anything on redirect?

MR. STEIN: We have no questions at this time.

CHAIRMAN WILSON: Members of the Board?

MR. SAMSON: I have a question, Mr. Chairman.

CHAIRMAN WILSON: Mr. Samson

Q. (By Mr. Samson.) Mr. Hopkins, you testified in answer to a question by Mr. Davis as to the Omaha situation and I want to check with you a little about that. You testified that the only matter concerned there apparently at the present time is the interceptor which is being built to tie in the bridge sewer, the Minne Lusa sewer, into the Grace Street and the Izzard Street sewers, dumping the sewage into the Missouri River below the Council Bluffs outlet or intake, rather. Are you aware of the remainder of that bonded money being used for some other purpose that has a direct relationship with the pollution of the Missouri River at Omaha?

A. Yes.

Q. And I am referring now to some plants at Harrison Street and drainage district 31 in West Omaha and Ralston generally.

A. Yes, my answer --

Q. Will you give us the benefit of what information you have there?

A. My answer was restricted to the Missouri River waterfront program. A considerable portion of the bond issue is being expended and contracts are already let on the enlargement of the existing secondary treatment plant that serves about a third of Omaha and in providing interceptor sewers to permit that plant to serve an additional segment of the population.

Q. And will that remove additional sewage and industrial waste which now finds itself going into the Missouri River at Omaha?

A. Yes. The discharges of that plant go through Papillion Creek to the Missouri River just below Omaha and it will materially and substantially improve the treatment that is now given those wastes. In addition, it will permit a larger segment of the city to be treated, to be served.

Q. Is there also an item of some six hundred thousand dollars out of that eight million dollar bond issue that is used for engineering and planning and studies to be used in the ultimate treatment of all sewage and industrial wastes now going into the Missouri River at Omaha?

A. Yes, that bond issue finances complete plans and specifications and the preparations of contract documents for the balance of the interceptor sewer program and the sewage treatment plant.

CHAIRMAN WILSON: Mr. Metzler.

Q. (By Mr. Metzler.) Mr. Hopkins, under cross-examination you were testifying about the progress or lack of progress which might have been made by cities below Omaha. Will you develop for me a little farther the progress which has been made, say, at Kansas City, Kansas? First, has this community voted any money toward its program of pollution abatement, pollution of the Missouri River?

A. They have already voted and have expended three and seven-tenths million dollars in Kansas City, Kansas.

Q. Do you have any knowledge of what might have been done at Leavenworth, which is the next city upstream taking water from the Missouri River?

A. Leavenworth has completed its final plans and specifications. That was done, completed a few years ago. They have recently instructed their consulting engineer to bring those plans and specifications up-to-date to make a July 1 contract award possible and the city has initiated liaison with the federal agencies to implement the financing of the federal share, since previously it had been agreed that Leavenworth would build a plant to serve the federal penitentiary, Fort Leavenworth, and the Veterans' Administration Hospital and the city has asked the Federal Government to firm up those arrangements.

Q. Thank you. And one more question or perhaps two. Has the City of Atchison made any progress toward sewage treatment and, if so, what is the nature of it?

A. The City of Atchison has arranged its finances and has instructed -- I believe they have also purchased their plant site, and they have instructed their consulting engineer to prepare final plans and specifications and contracting documents to permit a July 1 contract award.

Q. Is it true that those plans and specifications are actually completed now?

A. It is my understanding they are.

MR. METZLER: No further questions.

CHAIRMAN WILSON: Any other members of the Board?

MR. JONES: I have a question.

Q. (By Mr. Jones.) I think my hometown of Independence, Missouri, has been left completely out of this. Are you aware of what has been done there with regard to sewage treatment?

A. Yes.

MR. DAVIS: I might say I don't know your hometown.

MR. JONES: Independence, Missouri.

MR. DAVIS: Sir?

MR. JONES: Independence, Missouri, just next to Kansas City, below.

A. For many years, at least five, Independence has provided secondary treatment of all of its wastes that do not go directly to the Missouri River. They have already voted their bonds for the waterfront interceptor and sewage treatment of the rest of the City, and they, too, are preparing for a July 1 contract award.

Q. (By Mr. Jones.) A short time ago you read an order from the Surgeon General which gave an ultimatum to the City to proceed with eliminating its pollution here. That date was for sometime next year, wasn't it?

A. The recommendation rather than the ultimatum provided for a construction contract of March 1, 1960, with the work to be completed by March 1, 1962.

Q. There is one thing that kind of bothers me, that such an order would be directed to the City of Sioux City when the Government's own Air Force Base is allowed to discharge untreated sewage into the river. Now, your answer awhile ago to Mr. Davis to me was not too clear-cut about what the Government intends to do there. Would you elaborate on that a little bit?

A. The Central Air Force Command has assured me that their financing will permit the construction of a secondary sewage treatment plant during calendar year 1961.

Q. '61?

A. Yes. They have assured us that they will proceed irrespective of whether or not Sioux City proceeds and they will provide secondary treatment and, in any event, they will have their treatment in before Sioux City can possibly have its treatment in.

MR. JONES: That answers my question.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: I had just one or two more questions that I wanted to clear up and maybe the Board would be interested in it.

Q. (By Mr. Samson.) Apparently you had some dealings with the City Council here prior to a late new City Council, is that right, Mr. Hopkins, pertaining to pollution?

A. I have had some contact with the last two City Councils.

Q. Yes.

A. The current and the preceding City Council.

Q. Now, in your consultations and in conversing with the prior City Council, did you and the authorities that be discuss the Floyd and the river flood control situation?

A. As a part of the discussions that I had with the City Manager and the City council and the Iowa Department of Health, the flood control problem was mentioned and was discussed, yes.

Q. Now, with the full discussion of that flood control problem and your discussions with the City Manager and the representatives of the Iowa Board of Health, did you get a fairly substantial commitment from that Council in connection with the program involving the abatement of stream pollution at Sioux City?

A. There was a formal resolution adopted by the City Council, the then existing City Council, committing it to a program that scheduled a date for financing, completion of plans, and the award of contract, yes. That was quite satisfactory.

Q. That was satisfactory to all parties concerned?

A. Yes.

Q. Now, when did the new City Council come into being?

A. I believe January 1, '56.

Q. And was there some change in the personnel of that City Council?

A. Yes.

Q. And did you have subsequent conversations or consultations with the subsequent City Council, together with representatives of the Iowa Department of Health?

A. I had one meeting.

Q. And will you tell the Board what occurred at that meeting, who was present and what occurred?

A. The entire City Council, its attorney --

Q. And about what date was that?

A. -- Mr. Houser and myself. It was on March 7, 1958.

Q. All right. Now, go ahead.

A. We were rather bluntly told that the incumbent City Council did not intend to proceed with an abatement program until ordered to do so by a federal court. I believe --

Q. Who made that statement to you, if you recall?

A. Well, I am not sure that we could tie that statement down to a single individual.

Q. All right. Now, go ahead.

A. It was, however, confirmed by a formal resolution of the City Council on March 31, 1958, that I will give a quotation from, "That the steps set forth above" -- this is the quote -- "constitute the limit of the program of the City of Sioux City at the present time, and that in the event the several federal government authorities believe that the Missouri River is being polluted unreasonably at Omaha as a result of input at Sioux City, then the City of Sioux City shall proceed with all haste to officially demand a court decision." End quote.

Q. I see. Now, do you recall, Mr. Hopkins, what the attitude was or what the feeling was of the prior City Council in your conferences with that City Council and the representatives of the Iowa Board of Health as it related to the Floyd River flood control project and as it fitted into the pollution control program?

A. I can only give you, Mr. Samson, my interpretation of that relationship.

Q. Well, if that is a fair reflection --

A. I believe --

Q. I mean a fair and accurate reflection of it.

A. A fair reflection is that they realized that the sewage treatment program must go forward, that they would not have an alternative, that the flood control project was extremely desirable and that they hoped to plan the two in an orderly manner so that the City could have both such projects.

MR. SAMSON: I think that is all. Thank you.

CHAIRMAN WILSON: Any other questions?

MR. DAVIS: I have some, Mr. Chairman, in connection with Mr. Samson's discussion.

CHAIRMAN WILSON: All right.

Q. (By Mr. Davis.) In your meeting with the old council in November of '57 or the new council in March, as I recall, of '58 -- have I got those dates right?

A. I believe that is right.

Q. -- did you say to either council on this question of benefit that I interrogated you about last that there was no benefit to the city involved?

A. I said no tangible monetary benefits.

Q. To the City of Sioux City?

A. I think at that time I explained that the benefits from sewage treatment were largely intangible and it was difficult, if not impossible, to assign dollar values thereto and that it was not customarily done.

Q. Right. Now, the November '57 visit was on the eve of our municipal election, was it not?

A. November '57? I have my notes from that. November of '57?

Q. Meeting, yes, with the old council.

A. I had an October 30 meeting.

Q. That would be it.

A. Yes. Your question, sir?

Q. That was on the eve of our municipal election.

A. It was a short time before the municipal election, I do not know that it was on the eve.

Q. And I ask you this next question with the consent and knowledge of the council members, both councils present in the chamber, but the three members of the City Council were promptly defeated within the following week after that meeting, weren't they?

A. I know there were some changes in the City Council.

Q. And all three of them went out?

A. Is that right.

MR. DAVIS: I have no further questions.

Q. (By Chairman Wilson.) Mr. Hopkins, in view of your testimony, the questions that were asked you and the answers that you gave, about these different communities along the Missouri River all of which have sewer treatment problems, I would just like to ask you a couple of questions. Is it possible with your staff in the event that two or more or several communities of that kind are in such a situation that enforcement proceedings under the Federal Act would be justifiable against them, is it possible for your staff to prepare for such proceedings against several communities all at the same time?

A. Our staff is very limited for this program and I think that the same situation or the same procedure would have to prevail, that we used on our conferences, the preparation for which was much less extensive than a hearing of this type, and we tried to schedule our conferences at about six months intervals.

Q. Then in determining which of the several communities that may be involved in such a situation is to be tackled first for enforcement proceedings, what factors do you take into consideration?

A. The relative cooperation or effort that the city in question is making. We have given no plans for a conference or a hearing at Omaha or Kansas City because there is every evidence that the communities are working in good faith trying to carry out the program that they committed themselves to. It was quite opposite here, where we had an official resolution that nothing more was going to be done until we had a federal court order. That made the selection of the first hearing in Region VI. So to speak, we had no alternative.

Q. Does the location of the communities as to which is upstream or downstream in such a situation make any difference?

A. Yes. Each community would like to hold back until its upstream neighbor had already abated pollution. I think we know that no community has any real basic urge and desire to go ahead and build sewage treatment. If that were true, we wouldn't need any enforcement program, state or federal. So it is only natural, I think, that a downstream city uses as an excuse to delay the fact that the upstream city hasn't gone ahead. Likewise, it is only natural for the smaller communities to say, "Why should we go ahead now? Why not wait until our big sister city upstream has put in their treatment plant, because even with treatment they will still be discharging much more pollution than we are without treatment." And they have a point.

CHAIRMAN WILSON: That is all. Any further questions?

Q. (By Mr. Davis.) Mr. Hopkins, to correct any misapprehension the Board may have concerning the resolution of the City of Sioux City, it recited certain steps, certain things that the City would do and then said "further than that we can not go", isn't that it, rather than refusing to do anything?

A. Yes, the resolution said that you would go ahead with that part of your interceptor that the right-of-way was going to be covered up with an interstate highway and that you would make a study to see if treatment of the packing house wastes wouldn't solve the problem so that the City wouldn't need to treat any wastes.

Q. Yes.

A. And the resolution's conclusion was that that was reasonable progress and a reasonable program.

Q. Right. In other words, it wasn't a flat refusal to do anything. It was simply saying "farther than this we can not now go"?

A. That is right.

CHAIRMAN WILSON: Any other questions?

That is all.

(Witness excused.)

CHAIRMAN WILSON: That clock is still slow and unless you want to go ahead with a witness who would be very brief, I think we will take our noon recess.

MR. STEIN: No. As a matter of fact, we can speed this along by announcing that the Government at this point concludes the main portion of its case.

CHAIRMAN WILSON: Are you ready now to rest your main case?

MR. STEIN: We rest our main case, with the privilege of being heard for argument and other witnesses if necessary.

CHAIRMAN WILSON: Just a minute, gentlemen. Just a minute.

MR. DAVIS: Yes, sir.

CHAIRMAN WILSON: I haven't declared the recess yet.

MR. DAVIS: No, I was --

CHAIRMAN WILSON: I was just considering taking it.

MR. DAVIS: I was going to ask the State of Iowa personnel if they expect to testify. See, they haven't appeared yet.

CHAIRMAN WILSON: That is the point I want to bring up. Now, there were some witnesses here from states or from state agencies who wish to testify and if there is no objection, our plan was to give them an opportunity after the Government had rested its main case and before the City proceeds. Is that satisfactory?

MR. DAVIS: Yes.

MR. STEIN: Yes, sir.

CHAIRMAN WILSON: Well, then, will it suit the convenience of those witnesses who represent the states or state agencies or any other interested parties if they are put on immediately after the noon recess? Is there any of them that is in urgent necessity of being put on now in order to get away before afternoon?

All right. Then, with the understanding that we will take witnesses in that category immediately after the noon recess, we will take a recess now until 1:30 p.m.

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WHEREUPON, the hearing stood at noon recess until the hour of 1:30 o'clock in the afternoon, at which time the following further proceedings were had and entered of record, to wit:

AFTERNOON SESSION, THURSDAY, MARCH 26, 1959

CHAIRMAN WILSON: The hearing will come to order.

It is understood that the Government has rested its main case?

MR. STEIN: Yes. That is correct, sir.

CHAIRMAN WILSON: Then, Mr. Secretary, have you arranged for calling the witnesses for the states and state agencies and other parties? And, if so, will you please call the first one that wishes to go on this afternoon.

SECRETARY AYERS: I think they all need to be sworn, Mr. Chairman. I have Mr. Filipi of Nebraska, Houser of Iowa, Mr. Kalda of South Dakota, and Smith of Missouri. Is that correct?

CHAIRMAN WILSON: We will take them in that order, then.

SECRETARY AYERS: Can I have them sworn all at the same time?

CHAIRMAN WILSON: All right.

SECRETARY SYERS: The clerk will be here in a minute. We could go through this.

Will you give your name to the reporter?

MR. FILIPI: T. A. Filipi, F-i-l-i-p-i.

SECRETARY AYERS: Representing?

MR. FILIPI: Representing Nebraska State Department of Health, 1010 State Capitol Building, Lincoln, Nebraska.

MR. HOUSER: Paul J. Houser, H-o-u-s-e-r, representing the Iowa State Health Department, address is State Office Building, Des Moines, Iowa.

MR. KALDA: Don C. Kalda, K-a-l-d-a, representing the South Dakota Committee on Water Pollution and South Dakota Department of Health, Capitol Building, Pierre, South Dakota.

MR. SMITH: Jack K. Smith, representing the Missouri Water Pollution Board, State Office Building, Jefferson City, Missouri.

SECRETARY AYERS: Okay, gentlemen. Will you hold up your right hands and be sworn.

(Witnesses sworn.)

SECRETARY AYERS: I think the Chairman said take Mr. Filipi first. Was that it?

T. A. FILIPI

called as a witness on behalf of the State of Nebraska, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY CHAIRMAN WILSON:

Q. Mr. Filipi, will you state to the Board your full name and position and whom you represent?

A. My name is T. A. Filipi. I am Director of the Division of Sanitation of the Nebraska State Department of Public Health of Lincoln, Nebraska.

Q. Is there any other representative of the State of Nebraska here, other than yourself?

A. No, sir.

Q. And you don't have any member of the Attorney General's staff or other counsel here?

A. No, sir.

Q. Well, then, you may proceed to make whatever statement you wish for the record, subject to the right of counsel to interrupt you at any time and object to anything you may say if they wish.

MR. DAVIS: Yes. In that connection, Mr. Chairman, it is agreeable with me to proceed in that fashion. I think it would be faster, except that I ask him to go a little slow in his testimony so I could interject an objection if I feel so inclined.

CHAIRMAN WILSON: Very well.

THE WITNESS: I am Director of the Division of Sanitation, which position I have held since 1937. And the comments that I would like to make for this hearing are as follows:

The statutory authority setting up a Nebraska State Department of Health begins with the following statement:

"The Department of Health shall have supervision of all matters relating to necessary sanitation."

Through this directive, the Department of Health has delegated to the Division of Sanitation all responsibility in the field of sanitation and environmental health. This includes responsibility of water supplies, sewage disposal, proper and adequate waste disposal, proper and adequate insect and rodent control, air pollution control, swimming pool control, and many other areas affecting the environment. Definite programs have been set up for each of the areas in this assignment.

In assuming the responsibility for a sanitation program, cognizance is taken of the fact that it is a preventative measure.

MR. SAMSON: Can I interrupt you a minute, Mr. Filipi?

THE WITNESS: Yes.

MR. SAMSON: I wonder if you have a copy of your notes that you could turn over to counsel so that he could follow you and maybe that would facilitate whatever objection he might have to make.

THE WITNESS: I would prefer not to, because of the fact that even though I have my notes in front of me, there are certain changes that I am forced to make.

MR. SAMSON: Very well. Go ahead.

THE WITNESS: But if I am reading too fast, just correct me, please.

It is a well known public health conclusion that sewage treatment has been directly or indirectly responsible for the control of preventable diseases. Most of the great epidemics of the past were the result of inadequate sewage disposal. The Department has, therefore, taken the attitude that sewage should always be treated before being discharged where it can pollute the environment. The program then developed a strong campaign for sanitary pit toilets, properly designed and operated septic tank systems, adequate sewerage systems, and adequate sewage treatment.

Since setting up the Division of Sanitation in 1937, plans and specifications for sewers were never approved unless there was a treatment plant already in use or was included in the program. At the present time there are 183 treating plants either in operation or under construction. Those communities that are now discharging untreated sewage have sewers that were constructed prior to 1937, before the Division of Sanitation was organized. Already many of those communities have installed treating plants. A map showing the location and comparative size of all Nebraska sewage treatment plants is available for inspection.

We have pursued the policy that untreated sewage is dangerous and must be treated before being discharged Apparently the municipal officials of Nebraska communities and the general public have accepted this reasoning, and I go on record that there is no community in Nebraska today that does not place sewage treatment as their foremost project in municipal programming. This is proven by the fact that the largest communities now discharging untreated sewage have, in all but a few cases, retained engineers to make preliminary studies, preparing reports leading to financing, and the final preparation of plans. Conferences were held with all larger communities discharging untreated sewage and in no case has a statement ever been received that treatment will not be supplied within the very near future, that is within the next five years.

The State Health Department has been fortunate in promulgating this policy throughout the State and there is no state -- beg your pardon -- no city, no state or no federal institution that has been excused from this policy. As a result, all of our state institutions now have treatment facilities and all governmental agencies within the State have sewage treatment facilities. I am specifically referring to the various air bases throughout the State and specifically to Offutt Air Field in Omaha, which at the present time treats all the sewage with secondary treatment before discharging it.

MR. DAVIS: What was that last sentence, Mr. Filipi?

THE WITNESS: Do you want to read it?

(Record read.)

MR. DAVIS: Thank you.

The Witness: Another item of programming of which we are proud is the fact that in 1954 a letter was received from the Kansas State Board of Health drawing attention to the condition of the water that is flowing into Kansas through the Blue River and through the Republican River, and asking that attention be directed to improving that quality. Immediately conferences were held with municipal officials of communities that were discharging untreated sewage into these rivers and their tributaries and plans were immediately inaugurated, with the result that there is now either a treating plant, a treating plant under construction, or a plant under contract in the Big Blue River and its tributaries and in the Republican River. Therefore, at the close of this plan all water flowing into Kansas through the Blue River and through the Republican River will be treated by the installation of treating plants at every sewer outlet.

Inasmuch as this policy is prevailing throughout the State, it has been the general conclusion of all municipal officials that programs should proceed without hesitation because of what others are doing. Consequently, sewage treatment plants are now in active plan immediately above Omaha at Blair, where a plant is already finished, at Decatur, where a plant has been in use for about 15 years, at Omaha, where a 22 million dollar project is under way, at Bellevue, Plattsmouth, and Nebraska City. So, therefore, all of the wastes generated in Omaha -- I beg your pardon -- all of the wastes generated in Nebraska will have received treatment before being used as a water supply downstream from any of our communities.

The State Health Department has always been concerned about the use of surface water for drinking purposes. Even with adequate modernizing treating plants, we have been of the opinion that raw water should be of the best quality to relieve the load on treating equipment and relieve the responsibility of operating personnel for producing drinking water from contaminated and polluted raw water. Wherever possible, surface waters have been abandoned and ground waters have been developed. Within the last five years five surface supplies have been abandoned and ground water supplies developed. Unfortunately, some communities, such as Omaha, can not get sufficient ground water for their needs and must resort to surface supplies. Here again we have gone on the hypothesis that the best available water should be used and then such devices, processes and operating procedures installed to make the best use of the available water.

Metropolitan Utilities District of Omaha have accepted this responsibility and have spared no money or process to produce the best water that is possible for the consumers thereof. When the present program was being planned, Mr. Byrnes approached me and asked if there is anything available in this country or in Europe that could be inaugurated -- incorporated into their plant to supply better water for the citizens of Omaha because if anything was available, it was to be considered when the improvements were being made. The answer was negative, because to the best of our knowledge, they have included everything that is available under the knowledge of present-day scientists in their water plant.

There is further the policy that as soon as something new is developed that will give Omaha better water, the officials of the Metropolitan Utilities District are ready to make plans for improving that plant accordingly.

It is, therefore, our responsibility to those persons who must use surface supply to obtain for them the best supply that is available. In our opinion, Omaha today is not using the best supply that is available because there are communities upstream that could, with reasonable effort, install treating facilities, thereby decreasing the contamination and pollution in the water that they are now using.

MR. DAVIS: That last statement is specifically objected to at this time for the reason that it incorporates a conclusion and opinion of the witness and there has been nothing in his testimony to establish that he is at all qualified to testify concerning that. I object to it on the grounds of its competency or, rather, its incompetency, of course, Mr. Chairman.

CHAIRMAN WILSON: Received, subject to the objection.

You may proceed, Mr. Filipi.

THE WITNESS: The citizens of Omaha, especially the persons that are visiting Omaha, are cognizant of the fact that Missouri water is a trunk sewer from which they draw their water supply and perhaps in a joke, perhaps seriously, word is made that we are now taking a drink of sewage -- perhaps joke -- mentioning that it was flushed upstairs.

Further references were made to jokes, I don't know how serious they are, about signs appearing in restrooms saying, "Flush the " --

MR. DAVIS: I rather think, Mr. Chairman, that perhaps we should have had a copy of his dissertation in advance. I don't think the jokes in Omaha are material or relevant to this hearing. I would like to suggest to you that that is my objection to it and if the witness can omit that from the rest of his narrative statement, I think it would be advisable as far as this record is concerned.

THE WITNESS: I accept that.

CHAIRMAN WILSON: Very well, Mr. Filipi.

THE WITNESS: I accept that.

CHAIRMAN WILSON: You may proceed.

THE WITNESS: In the status of coliform counts, we are not holding to the 5,000, 10,000, 20,000 or 50,000. We are endeavoring at all places where water works are concerned to obtain the best water that is available, even to such degree that where possible we abandoned the surface supply and suggested a ground water supply be obtained, such as we did at Nebraska City, where water from the Missouri River was used. Therefore, we are at this time making a plea that the Nebraska community that must use the river water be considered by those persons that are affecting the quality of the water and, rather than taking advantage of a geographic position and taking advantage of the situation that Omaha can do no better, to make the status that the water in Omaha is safe.

We also would like to go on record that the precedent not be set up that when Omaha will make an improvement to their waterworks system by the installing of new techniques, new devices, new processes, or the using of larger quantities of chemicals for any purpose, it is not assumed that more sewage can be discharged into the river just because Omaha has an adequate plant to take care of it.

Omaha is taking the responsibility vested upon it by furnishing safe water to its constituents, but in taking the stand of the great state Nebraska, we have set a wonderful example by the construction of treating facilities at all important places for setting up programs of those places that have not been able to finance this in the beginning, by an educational program whereby other items of municipal government are being set aside for construction of treating plants, and inasmuch as we are following this same pattern of program, we are asking that other persons on whom we are dependent follow the same procedure.

CHAIRMAN WILSON: Does that conclude your statement, Mr. Filipi?

THE WITNESS: Yes, sir.

CHAIRMAN WILSON: Does counsel have any cross-examination?

MR. DAVIS: At this time, Mr. Chairman, I move to strike from the record the entire statement of Mr. Filipi, except the reference to the adequacy of the water supply treatment equipment in Omaha, on the ground that it is all entirely irrelevant and immaterial to any issue in this case and on the further ground that at least half of it is heresay.

CHAIRMAN WILSON: This motion will be denied and the testimony will stand, subject to the objection.

Let me repeat something of what I said earlier with regard to statements made by representatives of state agencies such as Mr. Filipi. We have permitted them to make statements out of order, and in view of the fact that they are not represented by counsel here, their statements so far as they border on the line of argument rather than evidence will be considered from that standpoint. And what they have said will be given evidentiary weight in reaching the findings and conclusions of this Board only to the extent that the Board, which now reserves its ruling thereon, determines that the evidence is competent, relevant, and material.

MR. DAVIS: May I cross-examine, then?

CHAIRMAN WILSON: Yes. Proceed.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Filipi, included in your statement was one to the effect that all wastes generated in Nebraska will soon be treated wastes, or something to that effect.

A. That is within the plan, within the program.

Q. Yes. How does the program stand with reference to the City of South Sioux City, Nebraska?

A. We have a commitment from the Mayor of Sioux City that they are --

Q. From South Sioux City. Go ahead. The Mayor of South Sioux City, you mean, don't you?

A. Yes, sir. Did I say --

Q. All right.

A. We have commitments from the Mayor of South Sioux City that they are cognizant of the responsibility and are willing to comply with our program at the wishes of our counsel.

Q. What is their present population, if you know?

A. On the witness stand, I hesitate to state because every time I ask someone I get a different answer. It ranged all the way from three to six thousand.

Q. You also mentioned that the public institutions in Nebraska are now all discharging only treated wastes. What is the situation concerning the hospital at Winnebago operated on the Indian reservation along the Omadi Creek that has been referred to?

A. I believe there is a septic tank in there. That is my understanding, but I would - -

Q. A septic tank?

A. Yes. I would like to verify that for the purpose of record.

Q. In your department, as I understand you to say, you control swimming, you at least mentioned swimming --

A. Swimming pools, yes, sir.

Q. What is your state department's position with reference to unsupervised swimming in rivers such as the Missouri?

A. We disapprove it.

A. Of unsupervised swimming in rivers?

A. Yes. Perhaps that isn't the right word that I wish to use, but we recommend against any swimming in any streams.

Q. Where there --

A. May I give you the reason for it?

Q. Where there is no supervision?

A. Even were there supervision we still would not recommend it.

Q. Do you take into account -- Well, would you recommend unsupervised swimming in lakes?

A. No.

Q. One of the last portions of your statement was this, that Omaha is furnishing safe water. Mr. Filipi, I am in a peculiar position here in that there has been admitted into evidence, over my objection, a transcript of the conference held on July 24, 1958, and I am lengthening this question out since I have no specific recollection of what periods of time you were here at this hearing. Now, in that conference, appearing on Page 66 of the transcript is your unsworn statement that the city water in Omaha is impure. May I assume, Mr. Filipi, in light of the statements you have just made and in light of the testimony introduced by the Government with reference to the treatment plant in Omaha and its efficiency, that you would now like to withdraw that statement?

A. I would not.

Q. What is your standard of purity for the Omaha drinking water?

A. I think that there is a difference and distinction between safe water and pure water. And if you will read the testimony given on Page 66 of the conference, the question was asked, "Is the water impure?"

Q. Right.

A. To which I said yes. And if you will read the paragraph that precedes that, I believe that the hearing, perhaps the Board should realize why the question was raised.

Q. Well, I am not sponsoring this. As I said, it has gone in over my objection and I hope later to be heard on this subject. But I will say to you that that was not sworn testimony. Would you like to correct any inference that your statement on that day gave rise to that the drinking water in Omaha was not fit for human consumption?

A. I did not state that, sir.

Q. Well, if there is any such inference, and I am sure it was taken and can refer you to the newspaper articles, if you are interested, you would not want that inference to persist, would you?

CHAIRMAN WILSON: Just a minute.

MR. EDELMAN: Mr. Chairman, the witness is not responsible for inferences that Mr. Davis or other people may draw from his statements. I think he has explained his statement and this is just an argument now going on between counsel and the witness.

A. If I amy have the privilege of explaining the reason for the "yes" of that day, I would appreciate it.

CHAIRMAN WILSON: Yes. Just a minute.

Are you registering an objection?

MR. EDELMAN: I am, Mr. Chairman, to this line of questioning. I have no objection to the witness explaining his statement. I think he should be given an opoortunity to explain his statement. He is not represented by counsel to protect him and examine him on redirect.

CHAIRMAN WILSON: Your objection will be overruled and testimony taken subject to the objection. This is cross-examination. I will now permit counsel to proceed.

Q. (By Mr. Davis.) I can shorten it in this way. Would you rather that no inference would be drawn that that Omaha water then in July or now is unfit for human consumption?

Q. I did not infer that, sir.

Q. All right. When you say it was impure, you didn't mean it was not fit to drink, is that it?

A. Yes.

Q. So it is just a question of your own personal definition of purity?

A. Again I would like to explain the stand on that, sir, if I may.

Q. Well, if you want to define that you meant by "impure", I certainly have no objection to that.

A. The reason that I said "yes" at that time is because I knew that the word is going to be disseminated and it has always been my practice, after receiving the instructions from persons whom I highly respect, that if there is ever a question that has to be answered with a yes or a no that it should be answered in a manner that will put everyone on guard. Therefore, appearing before this Board and making a statement that Omaha water is not impure at once releases the guard on everyone and would defeat the purpose of our work in public health and in sanitation. By the reference of impure, there is a relative -- that is an entirely flexible word. If we want to be technical about it, there is no pure water. By the same token, this is not my idea, but this is an idea that again I ask the Board to strike this if they see fit. I has been brought to me on occasion when it appeared that our water pollution control council is not acting fast enough to bring the definition of taking the contents of a bedpan from a hospital, mixing this with a little alum, a little bit of carbon, a little bit of chlorine, straining it and giving it to a person, saying, "Here, this is pure water." Now, that is my definition of pure water if we consider these treated supplies. It is safe, but I question the realm of purity. Omaha also had safe water.

Q. Of course, that is what I wanted to develop here. So if the Board considers that statement made in July, they now can consider it in the light of your explanation and your further statement today that Omaha is furnishing safe water, right?

A. Yes.

Q. You appreciate my problem. I didn't understand your definition of pure. Now, one other item that disturbs me, inasmuch as it is in this record, is this statement that you made, Mr. Filipi: "We have had epidemics which are associated with the filth borne downstream. I am referring to the infectious hepatitis that went right down the river for us." I said to you, " Did that correlate with anything in Sioux City or South Sioux City?" You said, "Yes, it did. It is my understanding that Sioux City went through that epidemic and it went to Omaha and went downstream." That statement made last July was based on your understanding as you explained it, isn't that correct?

A. That is right.

Q. Now, Mr. Filipi, if the public -- if the records in the Public Health Department of the City of Sioux City, Iowa, show -- and if you are interested I can bring you an article from the American Medical Association Journal -- but if these show that at the height of the epidemic that you had in Omaha -- which was in '53, was it not?

A. Yes.

Q. -- there was not one single case of infectious hepatitis in Sioux City, then the conclusion that you reached was erroneous, wasn't it?

A. I was wrongly informed.

MR. DAVIS: Thank you.

Q. (By Mr. Samson) Mr. Filipi, did you have an exhibit that you wanted to leave for the consideration of counsel and the Board?

A. I have an exhibit that shows the location and the relative size of all the treating facilities that we have in the State of Nebraska.

Q. Is that a recent map?

A. That was prepared last week.

Q. And prepared under your supervision?

A. It was prepared under my supervision.

Q. And does it correctly and accurately reflect the facts as intended to reflect?

A. I does to the best of my knowledge.

Q. Do you care to leave that with the reporter?

A. I would care to leave it with you. I have several copies of that, if it is necessary.

MR. SAMSON: I think possibly it ought to be marked.

CHAIRMAN WILSON: Has there been any other exhibit marked for the State of Nebraska?

THE WITNESS: No.

CHAIRMAN WILSON: Well, then, Mr. Secretary, mark that as an exhibit of the State of Nebraska, whatever designation you wish to give it in your series.

SECRETARY AYERS: I will mark it Exhibit No. 1, Nebraska's Exhibit No. 1.

(Nebraska's Exhibit No. 1
marked for identification.)

MR. DAVIS: What is the status, Mr. Chairman, concerning the exhibit? It has been marked?

CHAIRMAN WILSON: It has been marked, I understand, ---

SECRETARY AYERS: Yes.

CHAIRMAN WILSON: -- Nebraska's Exhibit No. 1.

MR. DAVIS: To facilitate matters, I will suggest that if Nebraska wants to offer it in evidence, since they have no attorney, in representing the City of Sioux City I object to it as immaterial.

CHAIRMAN WILSON: It will be received, subject to the objection.

(Nebraska's Exhibit No. 1
received in evidence.)

Q. (By Mr. Davis.) Mr. Filipi, your last statement was that you were wrongly informed?

A. Yes.

Q. Would you care to tell the Board where you received your wrong information?

A. If I remember correctly, it was a conference that we had in Omaha at the time when the infectious hepatitis was on its path.

Q. Perhaps I have the wrong suspicion. I was going to try to refresh your memory perhaps in this way, that the only other reference that we have heard concerning infectious hepatitis was from Mr. Glen Hopkins when he appeared before the council.

A. No, I didn't get it from him.

Q. You didn't discuss it with him?

A. No.

MR. EDELMAN: Mr. Chairman, I move to strike our counsel's last remarks, unless he wants to take the stand and testify as to a hearsay statement that would be objected to that he alleges was made by Mr. Glen Hopkins. Now, I think it is improper to have that statement in the record. I, therefore, object to it.

MR. DAVIS: It may go out, Mr. Chairman.

CHAIRMAN WILSON: Very well. It will be understood that it was stricken.

MR. DAVIS: That is all the questions I have.

CHAIRMAN WILSON: Any further questions? Members of the Board?

MR. KURYLO: Yes, I have a few questions that I would like to ask the witness.

Q. (By Mr. Kurylo.) You indicated in response to some questions on cross-examination that you would not recommend unsupervised swimming in streams.

A. That is right.

Q. Would you recommend supervised swimming in streams?

A. No.

Q. Why not?

A. Streams are treacherous. Not only is the public health hazard of pollution there, but there is the danger of sand holes. The water is never sufficiently clear to see a submerged bather in ordinary daylight. And then it is against the policy that we have adopted if there is a swimming pool in which the water is clear, filtered, chlorinated, with proper alkalinity control, licensed lifeguards, we think there is no reason to patronize swimming areas which do not meet those standards. In Nebraska we have sufficient artificial pools that anyone desiring that recreation can get it. So, therefore, we do not recognize sandpits, lakes, streams, or rivers for swimming purposes.

Q. I have a few other questions I would like to ask you. You mentioned a number of sewage treatment plants that have been either constructed, under construction, or now being planned by communities in the State of Nebraska. Without trying to pin you down to specific numbers, if you do not have any available before you, how many have been already constructed and completed?

A. Since which time, sir?

Q. Within the last ten years, say, or whatever type --

A. We have 183 in operation now.

Q. 183 in operation now?

A. In that category. Now, let me put it this way. Blair has this plant all finished, with the exception of a few adjustments to put into operation and that is finished. Now, these communities along the Blue River that I mentioned, Beatrice has their plant in such stage of construction that I would say by the first of July it will be placed into operation. Wilber is now under contract, Seward is now under contract, Superior is about 90 percent finished, Fairbury is about 90 percent finished.

Q. Are you familiar with the financing of those facilities?

A. Yes, sir.

Q. In how many instances, to your knowledge, was the financing based on a benefit cost ratio to the community building facilities?

A. None.

Q. Do you know whether any in the State of Nebraska are now being planned on that basis?

A. No.

Q. On what basis do these communities in Nebraska arrange or accept this financial responsibility?

A. Primarily, sir, it is a visit with the city officials, together with prominent citizens, down to the sewer outfall and show them what is being discharged. That, I think, was the prime factor that got Omaha in their 22 million dollar project. Not only were arrangements made for boat trips to the 28 outfalls, but a moving picture showing these details was made and shown to the various persons. The same held true at Beatrice, Fairbury and Superior, where I personally conducted the City Council to the outfall to demonstrate what was being thrown onto their neighbors.

Q. If I understand your last statement, you mean to say that the communities accepted the financial obligation of providing sewage treatment as a public responsibility?

A. Yes, sir.

Q. Not on a basis of any benefit cost ratio?

A. We make no inference that there will be a reimbursable revenue. Frequently the question is asked, "Can we make any money on the operation of our plant through the sale of sludge?" To which we answer no. The operation of your sewage treatment plant is one of community provided to indicate that you are not throwing your wastes, sewage, refuse onto a neighbor downstream who has no control over what goes past him.

MR. KURYLO: I have no further questions.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Davis.) Mr. Filipi, the towns, the smaller towns, in Nebraska who have new sewage plants, and I am sure the same in Iowa, are partially financed by federal funds, are they not?

A. At the present time we have taken advantage of the federal grants giving 30 percent - -

Q. Thirty percent total cost?

A. Thirty percent of the construction of the sewage treating facilities.

A. Correct. Which in many cases is 30 percent of the total cost, of course?

A. If it is only treatment, yes.

Q. And you know that as far as larger plants are concerned, such as we have been talking about for Sioux City, the limit is 250 thousand, am I correct?

A. Yes, sir.

MR. DAVIS: Thank you.

Q. (By Mr. Samson) I have a question. Is it a fact that in connection with the Omaha problem that the matter has been allocated or worked up or pieced together so that it is possible to avail themselves of more than $250,000.00 federal grant on some phase of the project?

A. Yes, sir. Because in the City of Omaha we are constructing treating facilities in various areas. At the present time there is a $2,200,000 improvement for the sewage treatment plant that treats the West Omaha sewage known as the Papillion Creek plant. That discharges sewage into the Papillion Creek. Just recently we were able to abandon one overloaded plant and to annex another area that is discharging sewage without treatment into Papillion Creek by the construction of an interceptor. That likewise is eligible for a grant.

Q. For a separate federal grant?

A. Yes, sir. So, therefore, inasmuch as the problem in Omaha is so complex, it presents more problems than several small communities and, therefore, I think the interpretation of the federal law is generous for genuine assistance in abating of pollution that affects interstate work.

Q. I ask you one more question. Are there streams in Nebraska that are now, or within the short foreseeable future, carrying water free of any untreated sewage at all?

A. The answer to that will be no, because we are always finding some person with a septic tank, some farmer. That is one of our busiest tasks right now of finding these little individuals. Now, as far as the Blue River and the Republican River, there are no municipalities, industries, or semi-public sewer discharges. But we are finding individual septic tanks that more or less -- what is a better word for bootleg? -- the sewage in without treatment.

MR. SAMSON: All right. Thank you.

CHAIRMAN WILSON: Any other questions? Counsel?

That is all, Mr. Filipi.

(Witness excused.)

CHAIRMAN WILSON: Who is next, Mr. Secretary?

SECRETARY AYERS: Let's call Mr. Jack Smith, representing the State of Missouri.

JACK K. SMITH

called as a witness on behalf of the State of Missouri, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY CHAIRMAN WILSON:

Q. Mr. Smith, will you state your full name and address and position?

A. Jack K. Smith, Columbia, Missouri, Executive Secretary Missouri Water Pollution Board, Jefferson City, Missouri.

Q. Go ahead and make any statement you wish to submit. You have given a copy to counsel for both the Government and the City, I see.

A. Yes, sir.

Q. So that your statement will be subject to interruption in case they wish to interpose a motion or objection.

A. Yes, sir.

THE WITNESS: The Missouri Water Pollution Board as the official water pollution control agency of the State of Missouri is deeply concerned about pollution caused by the discharge of untreated municipal and and industrial wastes at Sioux City, Iowa. The Water Pollution Board's primary concern is the protection of the Missouri River as a source of municipal water supply for the Cities of St. Joseph, Kansas City, Lexington, Glasgow, Booneville, Jefferson City, St. Charles and St. Louis. Our studies of the river convince us that a significant part of the organic content of the raw water at the St. Joseph water intake is caused by the discharge of untreated municipal and industrial wastes at Sioux City, Iowa.

MR. DAVIS: That sentence, Mr. Chairman, is objected to as a conclusion of the witness, no proper foundation has been laid, and, therefore, that it is incompetent.

CHAIRMAN WILSON: Received in evidence subject to the objection.

THE WITNESS: Some components of organic wastes are largely residual and are not fully removed by natural stream purification processes.

We are convinced that adequate treatment of all municipal and industrial wastes will do much to improve water quality in the river and will provide a raw water that can be treated in conventional water plants, thereby producing a safe and palatable water supply.

The Water Pollution Board is giving primary emphasis to the control of pollution in rivers and streams used as a source of public water supply.

Independence voted the necessary bonds to finance construction of sewage treatment works on November 25, 1958. Construction of the treatment facilities will start this calendar year. St. Charles, Missouri, voted bonds November 4, 1958, for the construction of sewage treatment works to treat all of the sewage tributary to the Mississippi River and part of the sewage tributary to the Missouri River. In general, Missouri municipalities and industries have made progress in pollution abatement. Of the 353 sewage collection systems in Missouri, 300 already have provided sewage treatment plants. Only 15 cities with a population of 5,000 or more do not have sewage treatment plants.

The next important phase of the pollution abatement program in Missouri is the financing of treatment works, which will be influenced to a large extent by progress made at upstream municipalities and industries. The Water Pollution Board therefore is vitally interested in the program of the upstream cities and industries because of the influence on the attitudes of Missouri municipalities as they approach the financing phase. The Missouri Water Pollution Board pledges continuing co-operation with the State-Federal cleanup of the Missouri River. The effectiveness of our part of the program will depend to a large extent upon uniform action upstream.

That concludes my statement.

Q. (By Chairman Wilson.) Mr. Smith, just a minute. As long as you haven't had any counsel to advise you or establish your qualifications, let me ask you if you have any professional qualifications in the field of sanitation or pollution control and, if so, please state them.

A. B.S. in civil engineering, Georgia School of Technology. Master of Science in civil engineering, University of Missouri. Eighteen years experience in public health engineering, Missouri Division of Health. Six years in charge of the water pollution control program in the State of Missouri.

CHAIRMAN WILSON: Any question?

MR. DAVIS: No cross-examination.

CHAIRMAN WILSON: Members of the Board?

MR. JONES: I would like to ask Mr. Smith a question about Independence.

Q. (By Mr. Jones.) How many people are involved in the sewage disposal into the Missouri River?

A. That plant is designed to serve some 65,000 people.

Q. And how far below the Kansas City's main sewage outlet are the Independence sewage outlets?

A. Approximately three-fourths of a mile.

Q. And how far below that is the new Missouri water plant located?

A. Approximately 2 miles.

Q. From what source does the new water plant get its water?

A. Wells.

Q. Would you hazard a guess as to why?

A. Yes. Because of pollution in the Missouri River.

Q. (By Mr. Samson.) Where is that, Mr. Smith?

A. Independence, Missouri.

MR. SAMSON: Thank you.

Q. (By Mr. Jones.) Their city limits and Kansas City's city limits adjoin?

A. Yes, they adjoin Kansas City.

CHAIRMAN WILSON: Is that all, Mr. Jones?

MR. JONES: That is all.

CHAIRMAN WILSON: Did you have a question, Mr. Kurylo?

MR. KURYLO: Yes.

Q. (By Mr. Kurylo.) Are you acquainted with the financial basis of the Independence sewage disposal plan, and you mentioned one or two other ones that have been recently constructed?

A. Yes, sir.

Q. How many of them were financed on the basis of a benefit cost ratio to the community involved?

A. None of them.

Q. Do you, in your knowledge of financing in sewage disposal plants, know of any that have ever been financed on that kind of a basis?

A. No, sir.

MR. KURYLO: No further questions.

CHAIRMAN WILSON: Any other questions?

That is all.

MR. DAVIS: Mr. Chairman, at this time the City of Sioux City moves to strike the statement and the testimony of this witness as irrelevant and immaterial to any issues here.

CHAIRMAN WILSON: Let me ask Mr. Smith. Mr. Smith, will you come back here a minute, please? This statement hasn't been marked as an exhibit. Is this statement that you left with the secretary and the reporter the same as the testimony that you just gave?

THE WITNESS: With the exception of the answers to his questions, yes.

CHAIRMAN WILSON: That is what I meant. You read the statement in full?

THE WITNESS: Yes, sir.

CHAIRMAN WILSON: That is all.

MR. DAVIS: I am not objecting to that, the fact that he is leaving the statement.

CHAIRMAN WILSON: Motion is denied. The testimony and statement will be received subject to the objection.

(Witness excused.)

SECRETARY AYERS: Call Donald C. Kalda, of South Dakota.

DON C. KALDA ,

called as a witness on behalf of the State of South Dakota, being first duly sworn, testified as follows:

DIRECT TESTIMONY

THE WITNESS: My name is Don C. Kalda. Present title is Chief, Water Pollution Control Section, Division of Sanitary Engineering, South Dakota Department of Health, Pierre, South Dakota.

Q. (By Chairman Wilson) Mr. Kalda, if you have any professional qualifications in this field, will you state them?

A. I have a Bachelor of Science degree in civil engineering from the South Dakota State School of Mines and Technology. I have a Master of Science degree in sanitary engineering from the University of Michigan.

Q. From what institution?

A. The University of Michigan. I have been employed by the South Dakota Department of Health since June of 1949, the last four years being in charge of the water pollution control program.

Q. Do you have a statement you wish to submit in behalf of the State of South Dakota?

A. Yes, sir.

CHAIRMAN WILSON: You may proceed. And please speak up so that the people at the farthest side of the room may hear you.

THE WITNESS: Statutory authority for water pollution control is vested in both the South Dakota Committee on Water Pollution and the South Dakota Department of Health. The Committee on Water Pollution has the primary responsibility for controlling water pollution in the State. Laws of South Dakota, 1955,Chapter 430, Sections 61.0142 through 61.0152. The Public Health Advisory Committee is directed to exercise functions relating to disposal of sewage and the pollution of waters. 1952 Supplement to South Dakota Code of 1939, Sections 27.0104, Paragraphs (3) (4), subparagraphs (b) (e), as amended by Laws of South Dakota, 1957, H.B. 717, Sections 1, 2, Subsections 27.0101, 27.0102.

South Dakota has participated actively with the States of Nebraska, Iowa, Missouri, and Kansas in the Uniform State Program for Water Pollution Control for the Missouri River. The uniform program for treatment requirements has been endorsed and adopted by the Committee on Water Pollution and the Public Health Advisory Committee. A similar policy has also been adopted on a statewide basis.

Progress in water pollution control in South Dakota is evidenced by the fact that treatment facilities serve a population of 318,000 in 137 municipalities out of a total sewered population of 358,000 in 163 municipalities.

Complete treatment is provided in 93 municipalities serving 283,000 people. Construction of new or improved treatment works was completed or is presently under contract in 43 municipalities during the period from 1955 through 1958. At least 20 municipal projects are planned for construction in 1959. Treatment facilities are in operation, under construction, or in the final planning stage for all waste discharges into the intrastate portion of the Missouri River. A majority of the municipalities in South Dakota have, therefore, recognized and assumed their obligation in providing waste treatment facilities.

The status of the pollution abatement program along the interstate portion of the Missouri River in South Dakota is summarized as follows:

Yankton. A consulting engineering firm was retained in January, 1956, and the preliminary engineering report was received by the water pollution control agencies in October, 1956. The State Legislature appropriated $42,565.00 as the State's share of the capital costs of sewage treatment for treating wastes from Yankton State Hospital. Federal construction grant funds in the amount of $105,000.00 were approved on June 24, 1958. The project schedule shown on the application indicated that contracts would be awarded within 400 days after the grant award.

No further progress has been made by the City of Yankton. Therefore, it will not be possible to comply with the schedule shown on the application for grant funds. The City Council has taken no further action on establishing a revised schedule for construction of the project.

Vermillion. A consulting engineering firm was engaged in March 1956, and the preliminary report was received by the water pollution control agencies in December, 1956. A sewer rental program was approved on April 16, 1957. However, charges have not been initiated. An agreement for engineering services for the final design and construction of the treatment facilities was signed on February 17, 1958.

Q. (By Mr. Samson.) Is that in connection with Vermillion?

A. Yes.

MR. SAMSON: Thank you.

THE WITNESS: The budget for calendar year 1959 includes $25,000.00 for initial planning and site acquisition. Federal constuction grant funds in the amount of $37,792.75 were awarded on March 11, 1958. The project schedule shown on the application indicated that contracts would be awarded 420 days after the grant award.

A program of sewer separation has been underway and will be completed in 1959. Expenditures for this work will approach $400,000 00.

The City of Vermillion has advised us that they will be unable to comply with the schedule shown on the application for grant funds. However, they have assured us of their co-operation in bringing the project to completion on a somewhat delayed schedule.

Elk Point. The City of Elk Point has discharged its responsibility in providing sewage treatment facilities. This community of 1350 population placed a raw sewage stabilization pond into operation in December, 1958.

That concludes my statement.

CHAIRMAN WILSON: Any cross-examination?

MR. DAVIS: No.

MR. STEIN: No.

CHAIRMAN WILSON: Any members of the Board?

MR. KURYLO: I would like to ask a question.

Q. (By Mr. Kurylo.) You testified that since 1955, from 1955 through 1958, there were 43 new projects constructed and as I understand it, there are 20 additional projects now under way. These are all sewage treatment projects, as I understand it?

A. Yes, sir.

Q. Are you familiar with the financial aspects of those projects?

A. Yes.

Q. How many, to your knowledge, are placed on a benfit cost ratio to the community concerned?

A. None.

MR. KURYLO: No further questions.

CHAIRMAN WILSON: Any further questions?

That is all.

MR. DAVIS: At this time, Mr. Chairman, the City of Sioux City moves to strike the statement and testimony of this witness for the reason that it is irrelevant and immaterial insofar as this accused is concerned.

CHAIRMAN WILSON: Motion denied. It will stand subject to the objection.

(Witness excused.)

SECRETARY AYERS: Mr. Paul J. Houser, representing the State of Iowa.

PAUL J. HOUSER,

called as a witness on behalf of the State of Iowa, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY CHAIRMAN WILSON:

Q. Will you state your full name and identify yourself and give your qualifications, if any, as did the previous witnesses?

A. My name is Paul J. Houser. My position is Director of the Division of Public Health Engineering, Iowa State Department of Health, with offices in Des Moines.

I am a graduate of the University of Iowa, having a Bachelor of Engineering degree in 1929, and a Master's degree from Harvard University, and I have been employed by the State Department of Health since July of 1929 as an assistant engineer up until the date of my present position, which was in September of 1949.

Q. Do you have a statement to submit?

A. Yes, Mr. Chairman, I have a statement and I have one copy and the Government legal counsel suggested I hand it to Mr. Davis.

Q. Have you given Mr. Davis a copy?

A. I have not yet.

MR. DAVIS: That isn't your only copy, is it?

THE WITNESS: No, I have my own.

MR. DAVIS: Oh.

CHAIRMAN WILSON: You may proceed, with the understanding that you may be interrupted if counsel wishes to interpose any objection.

THE WITNESS: Mr. Chairman, much of the information that is in my statement has already been brought out by Mr. Hopkins and on questioning by members of the Board. However, I would like to read it in order to enter it in the record as I have written it.

CHAIRMAN WILSON: Well, if you wish to enter it in the record, you may proceed to read it.

THE WITNESS: This is a statement of the Iowa State Department of Health in connection with the hearing on pollution of the Missouri River, Sioux City, Iowa, March 23, 1959.

The Iowa State Department of Health has long recognized the need for treatment of the sewage and industrial wastes now being discharged into the Missouri River and tributaries at Sioux City. In October of 1954, after the State Stream Pollution Law was changed to include in its coverage the border streams and lower 5,000 feet of tributaries to border streams, a hearing was held on the matter of pollution of the Missouri River and the two tributaries in Sioux City, being the Floyd River and Perry Creek. This hearing was based on an investigation of pollution by the State Department of Health and the cooperative investigation by the States of South Dakota, Nebraska, Kansas, Missouri, and Iowa, and the U. S. Public Health Service, the report of which is dated October, 1952.

Following this hearing, the City Council adopted a resolution which established a time schedule for the planning and construction of interceptor sewers and a sewage treatment plant. The schedule is summarized as follows:

Step 1. A preliminary engineering report was to be completed by January 1, 1957.

Step 2. A financing program was to be completed by January 1, 1958.

Step 3. The preparation of plans and specifications and awarding a contract for construction was to be completed by January 1, 1959.

Reports of progress were required to be submitted to the department beginning July 1, 1955, and at six-month intervals thereafter.

The City then filed a motion for a continuance, which reads as follows:

"Comes now the City of Sioux City, Iowa, and moves the Commissioner to continue without date this matter for the reasons hereinafter set forth. No. 1, that following the hearing held herein on Thursday, October 7, 1954, the City of Sioux City, Iowa, with the advice and guidance of the representatives of the Department of Public Health, has entered into an engineering agreement with an engineering firm for consultation, advice and studies to be made by said engineers of the problem out of which this matter arose, which said agreement was authorized and approved by the City Council of Sioux City, Iowa.

"No. 2, that said engineering study and the City's plans and the time of performance thereof have been informally approved by representatives of the Federal Government and the Iowa State Department of Health.

"No. 3, that the correction of the matter complained of by the City" -- may I repeat that -- "that the correction of the matter complained of by the City of Sioux City, Iowa, and the defendants herein therefore seems to be assured within the definite foreseeable future and there is, therefore, not any reason now why a formal order should enter."

Q. (By Mr. Samson.) Mr. Houser, can I interrupt you and ask you the date of the filing of that motion for a continuance that you are just referring to?

A. I can't tell you exactly. If I can go on, I will state that the motion was granted by the Department under date of February 23, 1955, so it was filed shorly before that.

MR. DAVIS: I can give you the date, Paul, if it will help you.

THE WITNESS: Perhaps Mr. Samson would like to have it.

MR. SAMSON: All right.

THE WITNESS: The letter was transmitted under date of February 11, 1955.

MR. SAMSON: Thank you, Mr. Houser.

THE WITNESS: "No. 4, --"

CHAIRMAN WILSON: Read Paragraph 3, again, will you please, Mr. Houser?

THE WITNESS: "Paragraph 3, that the correction of the matter complained of by the City of Sioux City, Iowa, and the defendants herein therefore seems to be assured within the definite foreseeable future and there is, therefore, not any reason now why a formal order should enter.

"No. 4, that an order continuing this matter would not prejudice the Commissioner in later issuing an order pursuant to the provisions of Section 135.20 of the Code of Iowa, 1954, should such order be necessary, which necessity is not apparent at this time." End of quotation of the motion for continuance.

The motion for continuance was granted by the Department under date of February 23, 1955. Industries which had been named as contributors to the pollution were also notified of this action.

Progress reports filed with the Department under dates of August 5, 1955, January 30, 1956, October 31, 1956, February 2, 1957, and November 4, 1957, indicated that the City was proceeding practically in accordance with the schedule. During this period permits were issued by the Department for the installation of extensions to the sewer system, with the stipulation that they would fit into the comprehensive plan for sewage treatment and with the understanding that issuance of the permits was not to be construed as approving the discharge of additional untreated sewage into the streams.

The next progress report required by the resolution establishing the time schedule was due January 1, 1958, but was not filed. Consequently, on March 22, 1958, representatives of the Department and the Public Health Service met with the Mayor, Council and City Manager for the purpose of discussing the need and further planning of the project, particularly because three new councilmen had taken office on January 2, 1958.

On March 31, 1958, the City Council adopted resolution No. R-6975, which stated in essence that the City did not intend to proceed with further planning and construction of the project except those portions of the interceptor sewer which would underlie sections of the interstate highway to be constructed in 1958 and which would cost the City less to construct in 1958 than at a later date. This resolution further stated, "that in the event the several government authorities believe that the Missouri River is being polluted unreasonably at Omaha as a result of input at Sioux City, then the City of Sioux City shall proceed with all haste to officially demand a court decision."

Following receipt of this resolution the Department consulted the office of the State Attorney General and the Public Health Service and since alleged interstate pollution was involved, it was deemed advisable to proceed with action under provisions of the Federal Water Pollution Control Act, Public Law 660.

Consequently, under date of April 18, 1958, the Surgeon General, U.S. Public Health Service, was requested to conduct a conference as authorized by the Act. The purpose of this conference was to provide opportunity for the five-state health departments co-operating in the cleanup of the lower Missouri River to review this proposal of the City and to proceed toward a court case if such was necessary at a later date. The conference was held in Sioux City on July 24, 1958.

In the meantime, the Department withheld and is continuing to withhold any action on issuance of permits for additional sewer extensions in Sioux City which would add to the pollution condition. These permits are required under provisions of the State Stream Pollution Law.

Events and actions taken after the date of conference on July 24, 1958, are as follows:

On August 1, 1958, a permit was issued to the City of Sioux City under provisions of the Iowa Stream Pollution Law for the proposed installation of an additional section of interceptor sewer along the Missouri River. It was stipulated in this permit that the proposed sewers would fit into the overall plan for comprehensive collection and treatment of the sewage and wastes of the City. It was further stipulated that issuance of the permit did not constitute approval of the discharge of untreated sewage or waste into the Missouri River or tributary thereof.

Under date of September 12, 1958, copies of the transcript of conference held on July 24, 1958, were sent to the City of Sioux City and to the following industries: Albertson and Company, Inc., Allied Laboratories, Inc., Armour and Company, Meyer Packing Company, Raskin Packing Company, Sanitary Rendering Company, Sioux City Dressed Beef Company, Sioux City Dressed Pork Company, Sioux City Stock Yards Company, Smith Packing Company, Swift and Company, and Tri-State Produce Company, all in Sioux City.

Under date of August 19, 1958, a letter was received from Armour and Company stating that it would be impossible to meet the September 1, 1958, date for discontinuing the dumping of paunch manure into the river and that studies and plans were under way for eliminating this type of waste on or about September 1, 1959. Permission to proceed in accordance with the September 1, 1959, date was requested.

Under date of August 21, 1958, a similar letter was received from Swift and Company and permission was also requested for an extension of time to September 1, 1959.

Both these letters were forwarded to the United States Public Health Service, and under date of September 29, 1958, a reply was received in which it was stated:

"As the time schedule was established after consideration by the conferees representing five states, it would not be appropriate for us to modify this time schedule on a unilateral basis. However, if the packing houses are proceeding in good faith to terminate effectively discharges of paunch manure, bedding and related wastes in an expeditious and reasonable manner, it is our present inclination to consider such action reasonably calculated to secure abatement of pollution within the spirit of the conferees' recommendations. We will recommend that this be the position of the Public Health Service if concrete evidence of reasonable progress if forthcoming."

This information was forwarded to Armour and Company and Swift and Company under date of October 7, 1958. On September 8, 1958, a letter was received from the Surgeon General of the U. S. Public Health Service transmitting a copy of the summary of conference held on July 24, 1958 and recommending that the State Department of Health take appropriate steps under its state water pollution control program to insure that contributors to the pollution take measures to meet the time schedule for remedial action. In reply, the Surgeon General was advised under date of October 31, 1958, that proceedings were instituted under the Statutes of Iowa in 1954 and remain pending and that it appeared that they may continue to pend for some time to come. It was, therefore, recommended that a hearing board be appointed under provisions of the Federal Water Pollution Control Act. The Surgeon General was also advised that actions on applications for permits to construct additional sewers in Sioux City which would intensify the stream pollution condition were being held pending completion of the proceedings under the Federal Act.

During the latter part of January, 1959, a question was raised as to whether drainage from livestock pens at the Sioux City Stock Yards Company was in the category of wastes that should be discharged into the sanitary sewer system or whether it was in the category of storm water that could be discharged via existing drains into the Missouri River. An investigation by this Department revealed this drainage to consist of overflow from livestock watering troughs, plus any rainfall on the open pens which would be collected by floor drains that that the pens were being dry cleaned periodically, the manure and bedding material being removed for transportation to farm land for use as a fertilizer.

City officials were advised under date of January 29, 1959, that this drainage would constitute storm water and could be discharged through the storm sewers directly into the river. However, if further investigations revealed the discharge of any industrial processing water or sanitary sewage into these drain lines, separation or discharge into the sanitary sewers would be required.

On January 27, 1959, representatives of the Department visited with the Honorable W. W. Wilson, Mayor, and Mr. Cornelius Bodine, Jr., City Manager, at Sioux City, for the purpose of inquiring as to the status of the interceptor sewer and sewage treatment project required in the pollution abatement program as appearing in the transcript of conference. Under date of February 12, 1959, the regional office of the Public Health Service was advised as follows:

1. The industries had not notified the City prior to January 1, 1959, as to the waste loading to be contributed to the City's sewers which would serve as a basis of design for the new municipal sewage treatment facility.

2. The City had not yet arranged for completion of final plans and specifications for sewage treatment facilities. The date of February 1, 1959, for taking this step had not yet expired, but it appeared that the City did not intend to comply.

The regional office was also advised that:

1. Plans were submitted and a permit issued for an additional section of the interceptor sewer along the Missouri River.

2. The City had proceeded with the procurement of a site for the sewage treatment plant and at the present time is involved in condemnation negotiations.

3. The Sioux City Stock Yards Company is removing manure and bedding from the cattle pens by a system of dry cleaning and the material is stock piled and hauled away by farmers.

4. It was our opinion that drainage from the open cattle pens at the Stock Yards Company was in the category of storm water and could be discharged directly into the river through the existing drains.

5. A study was begun to determine whether the elimination of industrial wastes from the Missouri River at Sioux City will, for a fact, reduce pollution of the river at Omaha so as to meet the standard of the U. S. Public Health Service. Samples of river water and other data have been obtained, but analysis of the data has not yet been completed.

6. A study is under way to determine the ability of the City to finance the remaining portion of the interceptor sewer and sewage treatment plant.

The regional office was further advised as follows:

"We were also informed that the Corps of Engineers, U. S. Army, has recently advised the City that a further study of the flood control project for the Floyd River indicates the two-channel plan to be the most feasible. Thus, the existing channel would be utilized for carrying normal river flow below flood stage and this decision apparently permits definite planning for the interceptor sewer. During the course of this conference with the City officials, we gained the impression that the City did not intend to proceed further with planning and construction of the sewer and treatment plant at this time nor in the near future, and that financing was the most important reason for delay, particularly because of the debt to be incurred in proceeding with the flood control project. However, a portion of the flood interceptor sewer will probably be constructed as it fits into the flood control project."

Mr. Chairman, this concludes the Department's statement of the proceedings pertaining to the situation at Sioux City. However, I have the following official comments.

Stream pollution control in Iowa is nothing new. In fact, the first sewage treatment plant installation probably outdates the State Department of Health and certainly outdates the first specific stream pollution law in Iowa. Although numerous plants were ordered to be constructed under provisions of the law, most of them are a result of the initiative on the part of local municipal officials to recognize the responsibilities in correcting conditions of pollution. They did not feel that they had the right to discharge sewage and wastes into the streams, even though in some cases public health hazards or other damages to water use were difficult to prove.

At the present time, there are 402 municipalities in Iowa having sewers. A Total of 336 or 84 percent of these are served by sewage treatment plants. Many of the remaining 66 cities and towns are located on rivers and streams where the amount of dilution water is relatively large and pollution conditions are not serious, at least to the extent of affecting public water supplies. However, even in these places, the Department has recommended and in some places insisted that adequate treatment facilities be constructed.

With a relatively small staff who can be assigned to the program, the Department must limit its activities to the order of importance. It is our opinion that the interstate condition of pollution in the Missouri River is of such importance that an early effort should be made to abate it.

That concludes my statement.

CHAIRMAN WILSON: Any cross-examination?

MR. DAVIS: Mr. Chairman, I do have on one subject only.

CROSS-EXAMINATION

BY MR. DAVIS:

Q. Mr. Houser, the July '58 conference set up a schedule to be followed by the City commencing with one item -- the first item was January 1, '59, insofar as the City was concerned, is that correct?

A. That is right.

Q. But there was a recommendation in the conference that in September of '58, as I recall it, the industries make other arrangements for the disposal of paunch manure, is that correct?

A. That is right.

Q. And as I understand your statement in your testimony, the two industries that inquired concerning that date received a year's extension to September '59?

A. I don't believe it was stated, Mr. Davis, that they received a year's extension. They requested an extension and their request was referred to the Public Health Service. The Public Health Service replied that as long as they were proceeding with an orderly program toward elimination of the material that Public Health Service would take the stand that that met the spirit of the program set up by the conferees.

Q. Yes, they say, "It is our present inclination to consider such action reasonably calculated to secure abatement of pollution within the spirit of the conferees' recommendations." So I take it their failure to have it complete in September '58, well, was forgiven for that time, for the time being, in any event? What I am trying to establish, Mr. Houser, is this: There wasn't any violation by them of the spirit and intent of that conference, is that correct?

A. That is the option I get from the Public Health Service.

Q. Now, with the City's first deadline being January 1, '59, the City of Sioux City actually was not in default, if I may use a legal term, when you were requested in September of '58 to take remedial steps, isn't that correct?

A. I am not sure I understand that. You are throwing in two dates there on me, Mr. Davis.

Q. Well, all right.

A. The January 1 date was the one on which industries were to notify the City as to wastes that would be discharged into the City sewers.

Q. Yes, that is correct. And the City of Sioux City was to award a contract with consulting engineers instructing them to proceed with final plans for construction by February 1, 1959, is that correct?

A. That is correct.

Q. So the first deadline that the City of Sioux City met was February 1, 1959?

A. That is right.

MR. EDELMAN: Mr. Chairman, I am not quite sure I understood his colloquy. Could I have the reporter read back the last two questions and answers?

CHAIRMAN WILSON: How far back do you want her to go?

MR. EDELMAN: The last two questions and answers.

CHAIRMAN WILSON: Just the last two questions.

(Record read.)

MR. DAVIS: I beg your pardon, Mrs. Rankin. "Missed", the first deadline the City "missed" was February 1, 1959.

Q. (By Mr. Davis.) Is that correct? That was the first deadline we missed?

A. You missed?

Q. Yes.

A. Yes.

Q. February 1, '59. All right. On September 8, 1958, you received a letter from the Surgeon General requesting the State Department of Health to take steps to abate this pollution. Now, I ask you this, Mr. Houser. In September of '58 we were not in default, were we? When I say "we," I mean the City.

A. The City. Insofar as proceeding with this time schedule.

Q. Set up by the conference?

A. At the conference.

Q. We were not in default?

A. The time table. Now, in regard to your statement you made at the conference, you mentioned that you were not going to proceed, the City would not proceed any farther.

Q. Oh, no, I am not referring to that. The conference made a finding which was after my statement and it set up a time schedule which appears on Page 93 of the summary, and that was done, as I recall, on July 24, 1958, at the end of the conference. Correct?

A. Yes.

Q. Now, in that schedule the first deadline that the City of Sioux City had to meet was February 1, 1959.

MR. EDELMAN: Mr. Chairman --

Q. (By Mr. Davis.) So --

CHAIRMAN WILSON: Just a minute.

MR. EDELMAN: I thought he had finished. I am sorry.

CHAIRMAN WILSON: You can straighten it out on cross-examination.

Q. (By Mr. Davis.) -- so in September of '58 we hadn't missed any of those deadlines set up by the July conference, had we?

A. No, you had not.

MR. DAVIS: Excuse me.

MR. EDELMAN: Mr. Chairman, the only objection I wanted to raise was that there seems to be some confusion on the legal implication of the recommendations that were made in the course of this conference, and I wasn't sure that I would be permitted to examine this witness, as Mr. Davis now is, without laying a foundation to qualify him as an expert on whether these recommendations in the tramscript are binding on anybody and whether there was a default, because I don't think he is competent to testify to either of those.

CHAIRMAN WILSON: I suggest that you wait until counsel finishes his examination and you will have an opportunity to question the witness and straighten out anything that you think is causing a misunderstanding.

MR. EDELMAN: Thank you, Mr. Chairman.

Q. (By Mr. Davis.) You are aware, Mr. Houser, that the federal statute under which we are proceeding here provides that six months shall elapse after the Surgeon General requests your department to take action before this proceedings can start? You either know it or you don't.

A. I am not sure that I do.

Q. When the Surgeon General requested you in September of 1958 to take remedial action, to whom was the correspondence addressed?

A. To the Commissioner.

Q. Dr. Zimmerer?

A. Dr. Zimmerer.

Q. Do you have the original or a photostat of that letter with you?

A. I don't have it right here.

Q. Well, a week ago we were in Federal Court in Fort Dodge and Dr. Zimmerer had all of his files with him at that time. You recall I talked with him about it, this issue. We hope to discuss it over there. Do you still have his file with copies of the correspondence?

A. Out there.

Q. Yes. Would you mind getting it?

MR. DAVIS: Mr. Chairman, I wonder, you are about up to your mid-afternoon recess point, if we could not take it now and perhaps Mr. Houser and I between us can resolve what it is I am trying to find.

CHAIRMAN WILSON: Yes, if you are going to take more time in cross-examination of Mr. Houser, we will take a recess for ten minutes.

(RECESS)

CHAIRMAN WILSON: You may go ahead, Mr. Davis.

Q. (By Mr. Davis.) Mr. Houser, on October 31, 1958, the Iowa Department of Health advised the Surgeon General that it appeared that your hearing would be continued for some time in recommending that he appoint a board. I am reading to you from your own testimony. Now, that letter was sent to the Surgeon General after conferring with whom?

A. With our legal counsel, the office of the Attorney General.

Q. Of the State of Iowa?

A. State of Iowa.

Q. And by "our" you mean the Department?

A. The Department, that is right.

Q. Dr. Zimmerer and you and the Attorney General discussed it?

A. That is right, sir.

Q. Now, the Attorney General did not advise you, did he, that you couldn't again schedule this hearing, inasmuch as the grounds for your motion for continuation had now been dissipated?

MR. EDELMAN: Mr. Chairman, I am not quite sure. Is he asking the witness to testify to a conference as to what the Attorney General said? If so, the Government will object.

CHAIRMAN WILSON: Well, if he knows, he may answer. If he doesn't know, he can say so.

THE WITNESS: May I have the question repeated?

CHAIRMAN WILSON: Do you want the question repeated?

MR. DAVIS: Yes, please.

(Question read.)

CHAIRMAN: Do you understand the question, Mr. Houser?

A. I don't because the question says to continue the hearing. Now, the hearing under the Iowa law had already been held in 1954.

Q. (By Mr. Davis.) Dr. Zimmerer never entered an order?

A. That is right, he did not, under state law.

Q. There wasn't any legal reason of which you and Dr. Zimmerer were advised as to why he couldn't now enter an order, was there?

A. Mr. Davis, I don't recall that that was -- that we were advised one way or the other on that. He merely advised us to proceed as you quoted from the letter, as I stated in my statement.

Q. So the question was your choice as to which procedure would be followed?

A. You mean me personally or the Department?

Q. The Department is whom you are representing today, Mr. Houser.

A. Well, I again say that we consulted our legal counsel and we took his advice.

Q. That this was the better way to go?

A. Better or worse, I don't know. He just merely said that we should proceed this way, advised us to proceed this way.

MR. DAVIS: That is all, Mr. Houser.

CROSS-EXAMINATION

BY MR. STEIN:

Q. Mr. Houser, were you in the room when Mr. Hopkins testified?

A. This morning?

Q. This morning.

A. Or Monday?

Q. This morning.

A. Yes.

Q. Do you recall his statements concerning the waste discharges from Tri-State Produce, the Sioux City Stock Yards and the situation at Allied Laboratories?

A. Yes.

Q. Do you have any information on the basis of your official duties which would modify his statement?

A. No, I have not.

MR. STEIN: That is all. We have no further questions.

CHAIRMAN WILSON: Do the members of the Board have any questions?

MR. SAMSON: I have a question.

Q. (By Mr. Samson.) Mr. Houser, just one or two short questions. Mr. Houser, on your next to the last page of your report --and would you be so kind as to have an exhibit number put on your report and leave that with the secretary or the court reporter so I can refer to it by number?

SECRETARY AYERS: We will mark that Iowa--

CHAIRMAN WILSON: Marking that Iowa State's Exhibit?

SECRETARY AYERS: Iowa State's Exhibit No. 1

(Iowa State Exhibit No. 1
marked for identification.)

CHAIRMAN WILSON: Any objection?

MR. DAVIS: No, sir.

CHAIRMAN WILSON: Received.

(Iowa State Exhibit No. 1
received in evidence.)

Q. (By Mr. Samson) Now, on the next-to-the-last page, as I was trying to follow your going through that booklet, being Iowa's Exhibit No. 1, you referred therein to the Floyd Creek flood control problem.

A. Yes.

Q. And would you just -- can you -- What was the date of that?

A. My statement says that we advised the Regional Office and then I quoted from the letter that went to the Regional Office. I can give you the date of that letter, if that is what you want.

Q. Well, just approximately. Can you do it without much time? Do you have it readily available?

A. It is about the last one in here. Dated February 12, 1959.

Q. Now, if my memory serves me correctly, that is the first date or the first time in your work there, being Iowa Exhibit No. 1, that the Floyd River flood control problem was mentioned.

A. Oh, no, sir. The flood control problem was mentioned at the time of our hearing in October of 1954.

Q. I see. So that problem has been in the picture, then, from 1954 and further back than that, isn't that right?

A. According to my information, yes.

Q. Yes. But irregardless of that situation, the City put themselves on a schedule to proceed on a certain schedule and furnished you progress reports in February of '55-- no, in August of '55, two times in 1956, and twice in 1957 on progress which they were engaging in as far as meeting the alleged stream pollution in the river?

A. Meeting the time schedule which was established by resolution of the Council in January of 1955.

MR. SAMSON: I see. That is all. Thank you, Mr. Houser.

MR. KURYLO: I have a few questions, Mr. Chairman.

Q. (By Mr. Kurylo.) Mr. Houser, are you familiar with the financing by municipalities in Iowa of their sewage treatment plants?

A. To some extent.

Q. Are you familiar with the methods by which they arrive at a decision to construct a plant?

A. Yes, sir, to some extent.

Q. Do you know whether any have ever been financed on the basis of a benefit cost ratio to the community concerned?

A. Well, under the special assessment procedure, as I understand it, assessments must be spread according to benefits. However, the common method of financing interceptor sewers and sewage treatment plants is either by general obligation bonds or by sewer revenue bonds or a combination of the two, in this case cost benefit is no factor.

Q. Would you explain further this question of your assessment on the basis of benefits received?

A. Well, under the Iowa statutes, any special assessment for a public improvement is based on the benefit -- the assessment is made on the benefitted properties.

Q. In other words, then, as I understand it, the Iowa law requires or would require, according to your statement, the assessment for sewage disposal plants which would benefit the industry in this area to be paid for by the industry?

A. Generally the other two systems are used, that is general obligation bonds or the sewer revenue. Now, of course, the sewer revenue method of financing is based on sewer rental or sewer service charges, so that actually the user of the sewer is charged in accordance with the use, which might be -- which you might say involves the principle of cost benefit and costs.

Q. If I may summarize this series of questions and answers, then, as I understand it from your answers to my questions, there are three methods. One is general revenue bonds, the other is a user charge method, and the third is a special assessment method?

A. Yes, sir.

MR. KURYLO: I have no further questions.

. CHAIRMAN WILSON: Go ahead.

Q. (By Mr. Poole.) Have you built any sewage or financed any sewage treatment plants in Iowa with special assessment bonds or just sewer extensions and that sort of thing?

A. Not to my knowledge, Mr. Poole. Generally, the special assessment is used for lateral sewers.

Q. Then your method for financing sewage plants is revenue bonds or general obligation bonds?

A. That is right.

MR. POOLE: Rather than the type that my colleague mentioned.

CHAIRMAN WILSON: Any other questions?

Q. (By Mr. Metzler.) Back on this benefit cost ratio matter for just a minute. You are familiar, of course, Mr. Houser, with the method of justifying many water resource projects in which the benefits are calculated and the cost of the project is also calculated and unless the benefit cost ratio is greater than one the project is not justified. Now, this method, is this method ever used to justify sewage treatment? You were using cost benefits, if I understood it correctly, in an entirely different connotation.

A. I said the cost benefit principle might be involved in the sewer rental or sewer service charge method of financing, but it isn't actually based on a cost benefit ratio --

Q. Is it --

A. -- as other projects, for example federal flood control projects are.

Q. Well, my whole point was -- All right, you have answered the question. Well, my whole point was, do you ever justify sewage treatment projects in Iowa on the basis that the benefits to the community as such exceed the cost?

A. No.

MR. METZLER: All right.

CHAIRMAN WILSON: Any other questions.

That is all, Mr. Houser.

(Witness excused.)

SECRETARY AYERS: That completes the State's case, Mr. Chairman, those that were listed with me.

CHAIRMAN WILSON: Are you ready to proceed?

MR. DAVIS: Yes. I have been ready since 9:00 o'clock.

Mr. Mullinex.

MR. EDELMEN: Mr. Chairman, if Mr. Davis intends to call more than one witness this afternoon, it might save time if they are all sworn now.

MR. DAVIS: They are not here, your Honor. I don't know why this is such a problem. I am sure you have the power to administer oaths and if you don't, I do. I am a Notary Public in this state.

CHAIRMAN WILSON: Oh, isn't the clerk here?

SECRETARY AYERS: Yes.

MR. DAVIS: But my witnesses aren't.

MR. EDELMAN: I thought they were here, Mr. Davis. I didn't mean to embarrass you.

MR. DAVIS. You do not embarrass me at all.

CHAIRMAN WILSON: Well, we will take care of that when we get to it.

CHARLES D. MULLINEX,

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DAVIS:

Q. Will you state your full name, please?

A. Charles D. Mullinex, M-u-l-l-i-n-e-x.

Q. (By Chairman Wilson.) How was that spelling?

A. M-u-l-l-i-n-e-x.

Q. (By Mr. Davis.) Where do you live, Mr. Mullinex?

A. 130 Twentieth Street Northeast, Cedar Rapids, Iowa.

Q. What is your occupation?

A. Consulting engineer.

Q. And with what firm are you presently employed?

A. I am a senior partner with Howard R. Green Company, Beaver Building, Cedar Rapids.

Q. And how long have you been with the Howard R. Green Company?

A. Since 1946.

Q. And how long has the Howard R. Green Company been engaged in work as consulting engineers for the construction of sewage disposal plants and water purification plants?

A. Well, the firm has been in continuous operation since 1913. As far as water and sewage, to my memory, I would say it is perhaps in the middle or late teens, in other words, 1916, '17, '18, when sewage first came into being, sewage treatment first came into being in Iowa.

Q. Could you give the Board an approximation or some idea concerning the various types of plants where you have been retained as consulting engineer or describe it in any way you want to, the amount of your firm's experience?

A. In numbers I couldn't tell you. The bulk of the firm's activity until World War II was in the municipal field of water and sewage and related fields.

Q. Since World War II what type of work have you been doing?

A. Well, about 50 percent of our work is in municipal consulting field, the other 50 percent is in industrial consulting field.

Q. In what states of the United States have you worked?

A. Primarily here in the middle west. As of now most of it is in Iowa. We have done work in Illinois, Nebraska, Montana, Minnesota, to name a few.

Q. What was your formal education?

A. Civil engineering degree at the University of Iowa in 1930, Master of Science 1932 in sanitary engineering. In 1934 I went with the Iowa State Department of Health and was with them nine or ten years.

Q. During what period of time?

A. Well, let's see, I think it was in May of '34 and then I went into service in May '43, so that would be nine years.

Q. What position did you hold in the Iowa Department of Health?

A. Public health engineer.

Q. Following your return from the service, did you become associated with the Green Company?

A. That is correct.

Q. Your company prepared for the City of Sioux City the engineering report entitled "A Preliminary Report on Sewage Treatment Facilities for Sioux City" in 1957, which has been identified as Exhibit 8 in this matter?

A. That is correct.

Q. Now, Mr. Mullinex, certain portions of this report dealt with the matter of the placement or construction of interceptor sewers, is that correct?

A. That is correct.

Q. Will you tell the Board what portions of those interceptors or those recommendations concerning them have been carried out by the City and when? It seems to me we have a map here that should help, Mr. Mullinex.

A. We have except it hasn't been introduced into evidence as an exhibit, and if I may I could use this aerial photo. There is one right there (indicating).

Q. "Proposed interceptor sewers and lift stations"?

A. Yes.

Q. I thought this was an exhibit.

A. No.

MR. DAVIS: Let's mark it as an exhibit.

SECRETARY AYERS: Sioux City's Exhibit?

MR. DAVIS: Yes. 1.

(Sioux City's Exhibit No. 1 marked for identification.)

Q. (By Mr. Davis.) Incidentally, Mr. Mullinex, the figures in Mr. Hopkins' testimony this morning concerning the cost of these various items and the total cost were taken correctly from your report, were they not?

A. That is correct.

Q. Now, what has the City done concerning the construction of proposed interceptor sewers, to your knowledge?

CHAIRMAN WILSON: If the witness is going to refer to this exhibit, you had better state the number for the record and offer it in evidence.

A. On Sioux City Exhibit No. 1 --

MR. EDELMAN: Has that been offered in evidence?

MR. DAVIS: No, I didn't intend to until he had identified it.

CHAIRMAN WILSON: What is it?

MR. DAVIS: I didn't intend to until he had identified it, but I will take care of that now. I withdraw my question, --

CHAIRMAN WILSON: Well, he started to point to the exhibit in answer to your question and I thought you had better identify it first.

Q. (By Mr. Davis.) This Sioux City Exhibit No. 1 is what, Mr. Mullinex?

A. It shows the location, general location, of the proposed interceptor sewers and lift stations for the City of Sioux City, Iowa.

Q. In accordance with your preliminary report, Exhibit No. 8?

A. That is correct.

Q. Is it a reproduction of a part of Exhibit 8 for the Government?

A. That is correct.

Q. You wouldn't remember which table it represents in there?

A. It represents Plate 42 in the report.

Q. Which is in evidence?

A. Correct.

MR. DAVIS: The City now offers in evidence this Exhibit No. 1, being a reproduction of a portion of Exhibit 8 which is in evidence.

MR. STEIN: No objection.

CHAIRMAN WILSON: Received.

(Sioux City Exhibit No. 1
received in evidence.)

Q. (By Mr. Davis.) Mr. Mullinex, will you go ahead and explain what has been installed?

A. Well, Plate 42, as indicated by the title, shows the location of these proposed interceptor sewers and lift stations, that is the general location as necessary to pick up the existing outfall sewers. And the sewers that have been constructed or which are under contract in connection with this relocation of Highway 75 generally starts here at the Floyd River lift station, which is at this point (indicating).

Q. And that point is where?

A. At the mouth of the Floyd River.

Q. All right.

A. And continues along the Missouri River on up to Perry Creek, which is generally in this area here (indicating).

Q. Now, that is under contract?

A. That is under contract and within another week or ten days the contractor informs us he will be in here to start construction.

Q. And what is the contract price for that work? What is the cost to the City going to be?

A. Well, I didn't have it broken down into these sections, but roughly that is about five hundred fifty thousand project cost.

Q. Dollars?

A. Dollars, right.

Q. Prior to this portion had some other of the proposed interceptor sewers been installed?

A. That is right.

Q. And describe on City's Exhibit 1 where they have been installed.

A. Two other sections were installed. One was at Isabella, up here at this interchange (indicating), which was a part of this relocation of Highway 75.

Q. Isabella Street?

A. Isabella Street. That was about 2650 feet. Then down at Gordon Drive approximately at this point (indicating) where there is another interchange, approximately 2240 feet of sewer was constructed to get out of the way of the interchange as a part of this relocation of Highway 75. Now, the total project cost of these three sections that have been pointed out is about eight hundred twenty-five thousand dollars, which has been constructed or is currently under contract.

Q. And the latter part of it that is to go in this year is how much again?

A. The project cost of that will be slightly in excess of five hundred fifty thousand.

Q. Now, the other three hundred thirty thousand dollars' worth of interceptor sewer --

A. Right.

Q. -- was installed when?

A. Well, I think the first one was installed perhaps as much as a year and a half ago when this other interchange was started.

Q. That is Isabella?

A. Yes. I can't tell you the exact date.

Q. So all of this has been done within the last year and a half?

A. That is correct, I think it is within the last year and a half.

Q. In connection with your survey and your report, did you make any recommendations as to the location, ultimate location, of a treatment plant?

A. Yes, we did. The recommended location for the treatment plant is down in this general area here (indicating).

Q. Which is at the lower right-hand corner of City's Exhibit 1?

A. And in a --

CHAIRMAN WILSON: Can he identify that point a little more definitely? It isn't exactly at the corner.

A. Well, I would say south of Floyd Monument, which is identified here on Plate 42. And the area is also identified on Plate 42 as the plant site.

Q. (By Mr. Davis.) Which is Exhibit 1?

A. Exhibit 1 is Plate 42 in the report and Exhibit 1 here. It is identified as the plant site.

Q. Now, Mr. Mullinex, reference has been made in some of the testimony concerning a report that your firm was making for the City of Sioux City, a progress report on your investigation of coliform bacteria densities, and I believe Mr. Houser said that up until several months ago it had not been filed. Will you advise if that has now been completed and filed with the City?

A. It has been completed and filed with the City, yes. However, this report was based on the information in the water pollution series No. 47 which has been revised and the data as outlined here and the conclusions as drawn are no longer applicable.

Q. Have you since the Government's case went in attempted to reform your data to fit in with that testimony?

A. Only to the extent that insofar as an apparent conclusion. Perhaps at this point I should explain for the information of the Board as to what procedure was taken. We were instructed by the City to ascertain if we could the relative amount of coliform organisms contributed by the domestic user and those contributed from the packing house area. The City forces collected samples from 15 major sewer outlets, I mean those that were contributing the largest volume of sewage. In those 15 outlets there were six outlets in the packing house area. Those samples were collected over an eight-day -- a consecutive eight-day period. The samples collected from any particular outlet were staggered insofar as timing on that particular day. Laboratory analysis was performed in the City Laboratory by a multiple dilution method as set out in standard methods and the most probable number for each of those samples was reported, then, to our office and we then made a statistical analysis of them based on the Thomas procedure in an effort to arrive at the apparent percent of coliform contributed from the domestic outlets as compared with that contributed from the packing house outlets. The samples --

Q. When was this sampling conducted?

A. September 3, '58, through September 12, '58.

Q. It was done in the City Laboratory which is a state-recognized laboratory?

A. As far as I know, that is correct.

Q. All right. Now, go ahead.

A. So taking these, the most probable number per hundred milliliters as reported to us, and applying that to the flows, average flows, that we had observed previously from these existing outlets to come up with a total number, say, of domestic as compared with that of the packing house area, it showed that approximately 87 percent of the coliform bacteria originated from the domestic outlets as compared with 13 percent coming from the packing house area outlets. Now, here I should state that these samples collected from the packing house outlet did not include yard drainage, which was reflected in the coliform counts as reported by Mr. Kittrell, and I think accounts for the difference in -- slight difference in those coliform densities as reported. It really in effect reflects the coliforn contribution, at lease we feel that it reflects the coliform contribution, that may be expected from the packing house area after they put into practice that in-plant control that they have indicated that they expect to put into practice, namely retaining paunch manure and dry cleaning pens and stockyards. With that type of in-plant control it is our opinion that this 13 percent represents a reasonable amount of coliform bacteria that you might expect from an operation of that type, with that type of in-plant control.

This means, to us, at least, in light of the coliform densities reported by Mr. Kittrell, which samples were collected in the Floyd River itself and reflected some of this paunch manure and pen drainage, that we can expect some reduction from that, I think it was 25 thousand that Mr. Kittrell reported, after the in-plant control procedures are put into practice.

The conclusions that I mentioned after you asked your question, Mr. Davis, and in answer to the original question of the City Council as to whether or not such control within the packing house area might reduce the coliform density at Sioux City so as to be within the limits of the standards as set up by the service, it is our opinion that this reduction would not reduce the coliform density at Sioux City so as to be within those limits of five thousand set up at Omaha.

Q. That is the five thousand MPN?

A. Per hundred milliliters, yes.

Q. By the Phelps Index. How close would it come if that were converted to present testing procedures?

A. I can't forecast that very well for the reason that the die-off curve that was developed from the original data in this 47 series has changed materially with this new data that has been submitted. In other words, the die-off, is more rapid based on this last information that has been explained by the Service. I can't forecast that or convert it, whichever way you wish.

Q. Using the figures that had previously been referred to, could you detail your conclusions made in the report you have just filed with the City?

MR. EDELMAN: Mr. Chairman, I am not sure I follow counsel. Which figures previously referred to is the witness going to refer to?

MR. DAVIS: Yes. By the Government.

MR. EDELMAN: I am not sure that we understand which ones he is going to use in his conclusion. There were a lot of figures given.

A. No, the current or the latest coliform information that was given by Mr. Kittrell.

CHAIRMAN WILSON: Well, I understand that the witness is being asked to readjust his former conclusions in the light of the latest information that was submitted. Is that right?

MR. DAVIS: He has just said that he can not.

CHAIRMAN WILSON: He says he can do that.

A. I can not in converting it back to the Phelps Index, no.

Q. (By Mr. Davis.) I see. Well, can you adjust the figures in your report to Kittrell's present figures as to what your opinion is as to the result at Omaha water intake?

A. My opinion is that with Mr. Kittrell's latest figures, coliform densities on the Missouri River, that with reduction of the packing house -- reduction of the coliform organisms from the packing house area that we still would not be within the limit as set up on the present standards of five thousand MPN per hundred milliliter.

Q. I see. Can you say to what figure it would be reduced at Omaha, in your opinion?

A. No, I don't think so, because as the coliform contribution at Sioux City changes or is reduced, then the die-off or the death rate curve is also going to change. In other words, it would be necessary to have controlled conditions within the packing house area or after this in-plant control has been put into effect to more accurately determine the percent remaining, percent remaining of the coliform organisms at Omaha. But I think that it does indicate, even with those in-plant controls, that the remaining coliform organisms at Omaha would still not be equal to or less than the five thousand limit set up by the present drinking water standards.

Q. Would the figure be reduced from that of Mr. Kittrell's for Omaha as reduced from 14,800?

A. I think it would, for the reason I just stated, that with reduction of the contribution from the Sioux City area and the reduction of material from the pens and yards that it would be lower than the 14,500 that was observed by Mr. Kittrell.

Q. Would you have an opinion as to whether the coliform densities at Omaha would then be within reasonable demonstrated limits of present day water treatment practices, controls and operation skills so that safe water could be produced?

A. Well, I think that has been demonstrated by data that has already been presented at this hearing.

Q. By what witnesses as you recall?

MR. EDELMAN: That calls for a conclusion by the witness as to what the testimony of other witnesses has established. That is for the Board, I suggest, to determine.

CHAIRMAN WILSON: He may answer so far as he heard it.

A. In my opinion, and as a matter of record, water treatment plants have demonstrated their ability to adequately treat high coliform densities far in excess of the five thousand that is presently set. In view of the capability of modern water treatment processes and controls, as far as operating skills, it would appear that these standards don't recognize the ability of a water treatment plant to produce satisfactory effluent under those conditions. It is my opinion that these standards are antiquated to the extent that they are not realistically compatible with the demonstrated ability of a modern water treatment plant. That not only applies to the raw water, but it also applies to the standards of the effluent. I don't recall whether this bacterial removal affected by water treatment processes was introduced as an exhibit or whether it was merely orally reported on, but on Table 8 -- can you refresh my memory?

MR. EDELMAN: I am not sure what you are reading from.

Q. (By Mr. Davis.) Is that Mr. Graham Walton's report?

A. That is right.

MR. EDELMAN: That was not introduced as an exhibit, certainly not by the Government.

CHAIRMAN WILSON: Are you objecting?

MR. EDELMAN: I am not sure for what purpose -- is he intending to read that into the record for evidence?

THE WITNESS: No.

MR. EDELMAN: I am not sure for what purpose the witness's attention is directed to it.

THE WITNESS: Well, let me finish and then you will know.

MR. EDELMAN: May I have the question repeated?

CHAIRMAN WILSON: Will you repeat the question?

Q. (By Mr. Davis.) Mr. Mullinex, I will address a question to you.

MR. DAVIS: And then you are entitled to object.

MR. EDELMAN: Okay.

Q. (By Mr. Davis.) Is it your opinion that the present United States Public Health Service standards concerning coliform densities in raw water are antiquated?

MR. EDELMAN: Mr. Chairman, I might suggest to counsel, I think it has been pointed out a number of times during the course of this hearing, that the Public Health Service does not have standards for raw water quality.

CHAIRMAN WILSON: Well, I am sure the witness understands what counsel means.

MR. EDELMAN: I am not sure, Mr. Chairman, that the witness understands. There is a standard for finished water quality. Now, if the answer of the witness is taken to mean that the Public Health standard is antiquated, that may be taken-- I don't know what that could refer to. It could refer to anything that the witness understands counsel to mean.

CHAIRMAN WILSON: If I understand the testimony, it was stated that this figure that has been used with reference to the coliform density in raw water was a recommendation.

MR. EDELMAN: That is right.

CHAIRMAN WILSON: With that amendment, if counsel will accept it, the witness may answer the question.

MR. DAVIS: Surely.

A. Well, then, the recommended limit is antiquated in view of the present water treatment practices and controls, skills, the diligence of operation, and it is not realistically compatible with its capabilities. Now, that I feel not only applies to the raw but also applies to the limits on the finished water. As I recall previous testimony, that raw water densities go up into the hundreds of thousands and still come out with less than two percent of the ten milliliter portions as being positive for showing coliform.

The standard permits ten percent. The plants have demonstrated their ability to produce that type of effluent.

Q. Then, Mr. Mullinex, would you agree with the statements of the Government witnesses that the Omaha, Nebraska, water plant not only has demonstrated its ability to produce safe water, but can continue to do so in the future with the presnet data we have concerning the coliform loading?

A. Well, when you refer to "continue to do so in the future," as a designing engineer and those of us here who had made inspections of water plants many times, unfortunately you can not design that operating procedure or design that qualified personnel or design that diligence of operation into a plant. That is the key, I think, to any plant operation. That is also the key to its assurance of producing a safe water supply as far as its effluent is concerned. Under the same continued apparent skill of operation and diligence of operation at Omaha, I see no reason why it can not produce a safe water, bacterially safe.

MR. DAVIS: You may cross-examine.

SECRETARY AYERS: May I have your attention, counsel, please, just a moment. I have just received a message from the deputy clerk that she is about to leave in ten minutes. So if either party has any witnesses that have not been sworn and who are to be called later this afternoon, they should come forward and be sworn.

MR. DAVIS: Mr. Huff, Mr. Rugg, would you mind coming up to be sworn by Miss O'Hern.

CHAIRMAN WILSON: All right, Mr. Secretary, will you ask the clerk to step in, please?

(Witnesses sworn.)

MR. SAMSON: I have a few questions that I would like to ask.

CHAIRMAN WILSON: Just a minute.

MR. STEIN: We will wait.

CHAIRMAN WILSON: Does counsel for the Government have any questions?

MR. STEIN: Yes, we do, but we will be happy to defer it to Mr. Samson.

MR. SAMSON: No, no, I am sorry. I thought you were through. Go ahead.

CROSS-EXAMINATION

BY MR. STEIN:

Q. Mr. Mullinex, first as a clarifying statement, in your study did you use the Phelps Index?

A. No.

Q. Thank you. Now, were your MPN tests based on a five-tube dilution test?

A. It is reported by the City Laboratory that that is the procedure they used.

Q. You described three interceptor sewers which are either constructed or put under construction. As I get it, one is the Perry Creek, of the one along the river, Perry Creek, Floyd River, the other is the one identified as Isabella Street and the other was Gordon Drive.

A. Right.

Q. Does the installation of these interceptor sewers diminish or treat the wastes in any way or diminish the waste load to the river?

A. No, it does not. It merely fits into this overall plan as shown here on the proposed --

Q. Now, in the engineering report, do you recall the estimate for these three sewers?

A. Yes. The estimate for these three sewers was about a million one hundred thousand as compared to the eight hundred twenty-five thousand project cost.

Q. And what was the contract price for these three sewers?

A. Well, the contract price, as I recall I took the contract price and added 15 percent for design, supervision and contingency as a project cost.

Q. Actually the contract price was --

A. About 15 percent less than the eight hundred twenty-five.

Q. Eight hundred twenty-five. Now, did you say that the sewers, these three sewers, were built because of the roads program?

A. I said that that was built so as to -- the Gordon Drive interchange and the Isabella Street interchange, they were constructed so as to get out of the way of the highway contractor prior to the time he got in there.

Q. Is it fair to say, then, that the highway program really was the stimulating factor here because the setting of the highway down would have necessitated their moving later?

A. Well, let's put it this way, that if the sewer had been constructed after the highway had been constructed, as I recall we estimated it might cost an additional $350,000 to serve the same area.

Q. You describe some proposals for this plant control from industries.

A. Correct.

Q. Have these in-plant controls been put into effect now?

A. It is reported to me that they have been put into effect insofar as pen area is concerned. Insofar as the actual in-plant, that that is set up to be in operation perhaps later on this year.

Q. Is that a City regulation that requires that or a voluntary program?

A. It would be a voluntary program on their part.

Q. On the industry part?

A. That is right.

Q. Now, when you did this study, did you make any analysis of the effects of wastes on the coliform count in the river near Omaha for your study here?

A. No.

Q. No?

A. No investigation on the river at all.

Q. Where did you measure these coliforms? Where did you take the samples for these measurements? Can you point that out on possibly the aerial photograph?

A. Riverside.

Q. Point to the place.

A. On the -- what exhibit is this?

Q. I think that is Government Exhibit No. 12.

SECRETARY AYERS: No. 12.

A. 12? Well, Riverside isn't on that one.

Q. (By Mr. Stein.) All right.

A. On Sioux City's Exhibit No. 1, this (indicating) indicates the general location of Riverside.

Q. How far from the sewer outlet is that?

A. You mean the Riverside outlet?

Q. Yes.

A. It was taken right at the --

Q. Right at the outlet. Where were your other samples taken?

A. Perry Creek.

Q. How far from the outlet were they taken?

A. Well, they were taken --

MR. STEIN: This is Government Exhibit No. 12. Will the record show that the witness points to the sewer coming out of Perry Creek at the meeting of Perry Creek and the Missouri River on Government Exhibit No. 12.

A. Now, these are reported to us as being collected from these sewer outlets.

Q. (By Mr. Stein.) Yes.

A. Sewer outlets. Here is Perry Creek (indicating) and we have one at Nebraska (indicating).

Q. Where was that taken in relationship to the sewer outlet, right in the outlet?

A. We are informed it was taken right in the sewer, at the sewer outlet.

Q. Would you point to the place that that was taken?

A. Well, in this case here, it would have to be up here (indicating), not up in here (indicating).

Q. It would be right--that point at Nebraska, is that Nebraska Street or Nebraska Avenue joining with --

A. Gordon Drive.

Q. -- Gordon Drive on Government Exhibit No. 1. Where was the next one taken?

A. The next one was Virginia Street.

Q. Virginia Street. Where was that taken, right up in the sewer or down below? Can you point out where that was taken?

A. Please understand that the City forces collected these samples.

Q. Yes.

A. And they advised us that it was taken at the sewer outlet and not in the ditch.

Q. We are not questioning --

A. Okay.

Q. -- this one bit, sir. We recognize the limitations. We have no reason to doubt that.

MR. STEIN: Let the record show that the witness pointed to the sewer outlet at the extension of Virginia Street as it goes down toward the Missouri River and not into the ditch which flows into the river.

A. Then we have --

Q. (By Mr. Stein.) Well, I think that will be enough for the point. The rest of the samples were similarly taken.

Mr. Mullinex, may I call your attention to Government Exhibit No. 24 indicating a typical sewage coliform bacterial -- coliform growth and die-away curve, and I think Mr. Kittrell pointed out that after the sewage was mixed with the stream and flowed down for a while, there was a period of rather rapid growth, then it reached a peak and a die-off. Now, as I recall Mr. Kittrell's method, he did not take this material until he got a proper mixing. This material, as you pointed out, seems to be taken as close to the mouth of these sewers as you possibly could get. Now, in the light of Mr. Kittrell's report and your experience, would you imagine that these coliform counts you have gotten might be just a little lower than they would be after they got into the river and mixed for a little while.

A. It is true in stream self-purification, bacterial purification, you do get an after growth after it is in the stream, but here we were not concerned about the stream itself. We were merely trying to determine the relative proportion contributed from the domestic outlets as against the packing house area outlets. We were merely trying to get an indication as to that relationship and on the method that we collected them or the City collected them, it was 13 percent packing house, 87 percent domestic.

MR. STEIN: For that point, we think that is very good. Thank you, sir.

CHAIRMAN WILSON: Are you through?

MR. STEIN: Yes.

Q. (By Mr. Samson.) Mr. Mullinex, I believe there has been some testimony here that the overall cost of the interceptor and the treatment sewer arrangement on its pollution problem for Sioux City was seven million two hundred thousand dollars. Is that approximately correct?

A. The estimated cost was substantially seven million two hundred -- $7,199,438.00.

Q. Yes. Now, this figure of $825,000.00 that you have testified to, is that a part of the seven million two?

A. Correct.

Q. Has that been paid for or are those funds available or can you give the Board any information on the financing on that?

A. I am in no position to know. I don't know how it was handled.

MR. DAVIS: I will have testimony on that point.

MR. SAMSON: Thnak you, Mr. Davis.

MR. DAVIS: He doesn't know.

MR. SAMSON: I believe that is all. Thank you.

CHAIRMAN WILSON: Any other questions? Mr. Poole.

Q. (By Mr. Poole.) Did I understand you to say the report, which has an overall estimate of seven million two, estimated the $825,000.00 worth at a million three hundred thousand?

A. Million one.

MR. POOLE: Thank you.

CHAIRMAN WILSON: Mr. Kurylo?

MR. KURYLO: Yes, I have several questions.

Q. (By Mr. Kurylo.) I understand that on direct examination you indicated that based upon the coliform count you took and the change in data, that is data developed at an earlier date and data developed and presented at this hearing, you indicated that it would result in a change in the die-out pattern of the coliform as they moved down the river. Is my understanding of your statement correct?

A. To this extent. I think I said, I intended to say, that after those in the packing house area put into practice this in-plant control excluding pens, yard material, paunch material, which will reduce the amount of coliform organisms contributed at this point, Sioux City, that will have a tendency to change the death rate between here and Omaha.

Q. It would change the death rate. Would it change the death rate curve as indicated on the chart behind you?

Can you identify that exhibit?

MR. DETMAR: 24.

A. Exhibit 24?

MR. DETMAR: Government.

Q. (By Mr. Kurylo.) Government Exhibit 24.

A. Yes. Yes, I think it would, primarily due to reduction of not only the amount of coliform organisms but also in the amount of organic material that otherwise has been contributed. I mean I am talking about the pens and the yards. It would change that pattern, I believe.

Q. You heard testimony yesterday, you were here all day yesterday, were you not?

A. Yes.

Q. Do you recall the testimony which indicated that the higher the coliform count the more probable is the presence of disease pathogens?

A. That is reasonable, yes.

Q. You agree with that conclusion?

A. Yes.

Q. In your opinion, based upon the installation of these sewer lines you indicated, would that make the water between here and Omaha satisfactory for outdoor recreation, such as swimming and fishing?

MR. DAVIS: I believe, Mr. Chairman, --

A. Outdoor -- may I --

MR. DAVIS: -- that I am going to object to that question as not being proper cross-examination and this witness not having been qualified on that subject at all for testifying.

CHAIRMAN WILSON: Well, Mr. Kurylo, in view of counsel's objection, do you wish to press that question?

MR. KURYLO: I won't press it, if he feels that way. I will withdraw the question.

CHAIRMAN WILSON: The question is withdrawn.

Any other question?

Mr. Poole has another question.

Q. (By Mr. Poole.) You are not intending that these housekeeping procedures in the packing plants which have been described will eliminate the 13 percent of the bacteria in this area which you attribute to the packing plants, are you?

A. No, sir. No, sir. The 13 percent merely represents that portion of the total.

Q. That includes that that goes out in what you and I normally consider liquid industrial waste as well as that -- you just eliminate the paunch manure and the bedding and that portion of it, if I have followed you properly?

A. That is right.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: I have just one short question.

Q. (By Mr. Samson.) Mr. Mullinex, are you prepared to say what the cost of the treatment plant will be down there near the Floyd Monument?

A. Well, that was estimated roughly two million.

Q. Does that take into consideration an interceptor sewer which will pick up the disposal out of the Floyd that now goes into the Floyd?

A. Well, to break that down, roughly the estimate of five million dollars was made on all of the interceptors, the lift stations, and other connecting sewers, exclusive of the sewage treatment plant at five million. The treatment plant was estimated at approximately two million.

Q. Would there be any interceptor, then, at that price between the treatment plant and the associated industries down in the neighborhood of the Floyd River?

A. Going back to Sioux City Exhibit No. 1, that area here (indicating) that you refer to on the Sioux City side of the Floyd Monument towards the Floyd River, that area will be picked up, can be picked up by gravity and taken back to what we call the Floyd River lift station and then pumped up to the top of the hill and by gravity down to the plant site previously pointed out.

Q. Yes. I did understand it that way. But my question was, does the two million dollars cover that whole operation?

A. The two million dollars covers the plant itself.

Q. I see. Thank you.

A. The five million covers the other sewers, interceptor sewers and connecting sewers, to serve the area.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Any other questions?

REDIRECT EXAMINATION

BY MR. DAVIS:

Q. Mr. Mullinex, do you have any explanation for the difference between your estimated cost of the interceptors that we have installed and the actual cost?

A. Yes. There are two explanations. One, in making up our estimates and trying to anticipate a schedule, we took the then construction cost and applied the construction index trend insofar as increased costs for the succeeding years. In this event here of these sewers that have been constructed, they were constructed prior to the time that we had them tentatively scheduled, plus the fact that this year in Iowa we have had some very competitive contractors in this type of work, which accounts for that difference. Another saving was by constructing this sewer concurrently with the relocation of Highway 75.

MR. DAVIS: That is all the questions I have.

RECROSS-EXAMINATION

BY MR. STEIN:

Q. I am prompted to ask another question by Mr. Samson's question. In answer to his question, I recall you said that the sewage treatment plant down at the Floyd Monument would cost approximately two million dollars?

A. Million Nine.

Q. That is close enough. Did you allocate costs in your report for that plant to the City and to industry?

A. Well, as far as report is concerned, we did set up a tentative allocation --

Q. Allocation.

A. -- for the consideration of the City.

Q. Do you recall what amount you said was to be allocated to the City?

A. To the City?

Q. Yes. Let me call your attention to Page 47 of the report. I may not be too familiar with this, but it says, "Sewage treatment plan allocated to the City $823,935.00." Is that about an accurate representation of the allocation?

A. Please understand that this allocation, tentative allocation, as set up in the preliminary report was merely our suggested consideration, a suggestion for the consideration of the municipality and its industries.

Q. We fully understand that and appreciate that, sir.

A. And it is entirely up to the -- between the City and the industry as to how it shall be allocated. The other reason was that we wanted to show the industry what the various types of treatment would cost so that they could re-evaluate their operations as a basis for in-plant control and the economics of in-plant control. They could spend so much money to reduce the cost and it reflects in this unit price that was set up in the case of the clarifiers as against the divesters, so they would have some rule to be guided by on economics of in-plant control to reduce those wastes.

Q. Did you consider this a reasonable allocation when you made the suggestion?

MR. DAVIS: That is objected to as immaterial now under his testimony.

CHAIRMAN WILSON: Overruled. Taken subject to the objection.

A. Obviously, or we wouldn't have put it in the report.

Q. (By Mr. Stein.) If you didn't think it was reasonable. Now, again, one last question, you indicated in the preface to this report that all these estimates were running 10 percent higher than you believed actual construction, so on that $823,935.00 we probably could eliminate another $80,000.00?

A. That would be very nice.

MR. STEIN: Thank you. No further questions.

CHAIRMAN WILSON: Any further questions, anyone?

You are excused, Mr. Mullinex. You didn't have any more did you?

MR. DAVIS: At the request of the witness, I withdraw my objection to Mr. Kurylo's question. He would like to answer it.

CHAIRMAN WILSON: Very well.

MR. EDELMAN: If Mr. Kurylo still wants an answer, Mr. Chairman?

MR. KURYLO: At this stage --

CHAIRMAN WILSON: I will ask him to repeat the question.

MR. KURYLO: At this stage I withdraw my question on the basis that I was looking for an objective answer regardless of which way the chips fell. At this stage I think that I am not interested in what the answer might be, sir. I was sincerely trying to get the man's opinion on a question on which I did not know what the answer might be.

MR. DAVIS: I don't know, Mr. Kurylo, what his answer might be, either.

MR. KURYLO: You can ask it on redirect if you wish, but I have withdrawn my question.

CHAIRMAN WILSON: If counsel wishes to have Mr. Mullinex answer the question, the reporter may find the question and repeat it or counsel may repeat his recollection of it.

MR. EDELMAN: Mr. Chairman, the Government would have no objection to Mr. Mullinex answering what he recalls Mr. Kurylo's question to be. Is that satisfactory?

MR. KURYLO: I have no objection to that arrangement. I just don't want to ask the question.

CHAIRMAN WILSON: All right, go ahead, Mr. Mullinex, and make your statement in answer to that proposal.

THE WITNESS: Will someone --

MR. POOLE: Somebody tell us what the question is.

THE WITNESS: That would be nice.

A. As I recall, the question was about the advisability of swimming in the river.

Q. (By Mr. Kurylo.) Swimming, boating, and my recollection is it was asked after I had asked you about the higher the coliform count and more probable presence of pathogens and you had accepted that as a reasonable statement based upon testimony given yesterday. Then if I recall, I asked you whether, in your opinion, the waters between Sioux City and Omaha would be safe for outdoor activities such as swimming, boating -- water skiing, I might add now, I didn't add it in the original question -- and related recreational activities.

A. Well, insofar as swimming is concerned, the reason why I appreciated the opportunity to make a comment on it, because during the years when I was with the State Department of Health, it was in those years, the middle and late thirties, when a lot of swimming pools were constructed in Iowa and in talking with City Councils and with civic groups, the thing that we always tried to impress upon them was insofar as the advantage of the swimming pool is that at least you have supervised swimming. That is the reason why many of the public pools are built, because they want supervised swimming, not only from the safety standpoint insofar as treatment of the water, its physical clarity, the chlorine residual as far as bacterial safety, but primarily that supervised swimming in a water than you can supervise, that you can see the bottom and you have a high degree of safety. We had always discouraged in those days any area of unsupervised swimming; I don't care whether it is in the river or whether it is in a lake or what-have-you, it just isn't good practice. Once you are drowned, your chances of recovery are practically nil. And I fail to see the advisability of even implying the promotion of swimming in a river such as the Missouri because it has been long known as a very treacherous stream. In the summertimes it has velocities of about 4 foot a second; even for an excellent swimmer he has to exercise care, he has to have respect. And I am a firm believer that that is not the place to encourage people to go swimming.

DR. VAN HEUVELEN: May I follow that up with one additional question, Mr. Chairman?

MR. KURYLO: I haven't had an answer to my question yet.

DR. VAN HEUVELEN: Excuse me.

Q. (By Mr. Kurylo.) I appreciate the witness's comments, but on the basis of his answer I will reframe my question. Assuming some agency, public or private, had made plans or might make plans for supervised, adequately supervised, water activities on the Missouri River at a point well protected from the standpoint of river movements and floods, would the water be safe water for swimming or for other types of outdoor recreational activity from the standpoint of the question which I asked you initially, that the higher the coliform content or the higher the coliform count the greater probability there is of the presence of pahtogens in the water? Now, do you understand the point I am driving at?

A. And it would not be safe in either event, whether it was the present count or whether it was within the standards or objectives of a thousand. As far as bacterial safety, it would be necessary to be equivalent to drinking water. That is the standards insofar as swimming pool sanitation, insofar as the treatment of swimming pool water. In fact, in most instances, the swimming pool water is better than the water you drink just from the standpoint of physical clarity and appearance. It must be that clear in 10 or 12 feet, otherwise you have those complaints.

MR. KURYLO: No Further questions.

DR. VAN HEUVELEN: He inadvertently answered my question.

CHAIRMAN WILSON: Thank you, Mr. Mullinex. I guess that is all.

(Witness excused.)

CHAIRMAN WILSON: According to my time it is now 5:00 o'clock. Do you have a witness who could be disposed of briefly or shall we adjourn until tomorrow?

MR. DAVIS: We have several witnesses, but I can't be assured of the brevity. I would like to suggest to the Chairman, there are several people involved, witnesses and attorneys, who have a scheduled engagement at 5:30, not including myself. I don't know about the Board, but I find myself very tired. I think we would be much fresher in the morning. I would suggest that we adjourn until such time as you wish to reconvene, because obviously our case, our testimony will take another hour and a half or two hours at the rate we are proceeding.

CHAIRMAN WILSON: In view of that, it is satisfactory to adjourn until 8:30 in the morning.

MR. STILLWELL: Mr. Chairman, I represent Allied Laboratories and I have an application here to dismiss because we have not been manufacturing here since 1955. I understand that the evidence has already indicated the fact that we are not now manufacturing. Our application is supported by an affidavit, but I would like to know now whether you would like to hear testimony. If so, my witness will have to come a considerable distance. But I shouldn't think it would be necessary.

CHAIRMAN WILSON: Does the Government have any objection to the motion for dismissal as to Allied Laboratories?

MR. STEIN: Sir, we don't believe that the procedures of this Board call for us to make a recommendation for a dismissal. We are presenting facts to the Board as a fact-finding board and an information-gathering board. At the conclusion of the case, we will be happy to give you our recommendation as to Allied Laboratories.

CHAIRMAN WILSON: That was the understanding when the motion was made at the opening of the case, but now it is being renewed in view of the evidence up to now.

Does the Government have in mind that there will be some further evidence bearing on the responsibility of Allied Laboratories?

MR. STEIN: No, sir, we do not. If no further evidence comes in as indicated now, we would recommend that Allied Laboratories not be considered as contributing to the pollution of the Missouri River.

CHAIRMAN WILSON: Will you repeat that?

MR. STEIN: If no further evidence than has been adduced up to this point comes in before this Board, we would have no hesitation in recommending that Allied Laboratories be considered as not presently contributing to the pollution of the Missouri River in the Sioux City, Iowa, area.

CHAIRMAN WILSON: Well, the reason I asked you to repeat that was I wanted to ask you now if we may understand that as a consent by the Government to the granting of the motion for dismissal?

MR. STEIN: Well, I would doubt, sir, whether we would have the authority to make that consent. We certainly would interpose no objection.

MR. EDELMAN: Mr. Chairman, if I may suggest, what the Government's position here is may be briefly stated, that this is a fact-finding board. In the absence of evidence as to continued pollution by Allied Laboratories, and the Government concedes no evidence as to such pollution has been introduced, at the conclusion of the hearing when the Board makes its findings and lists the individuals, firms and cities that contribute to the pollution, it would then be appropriate for the Board to exclude or drop Allied Laboratories from the proceeding. I think that the use of a procedure of a motion to dismiss is inappropriate, if I may so suggest, in a proceeding of this kind.

MR. STILLWELL: Mr. Chairman, --

CHAIRMAN WILSON: Let me make just a comment on that. Then as I understand, the Government's position is that you know of no evidence which would support a finding holding the Allied Laboratories responsible for any pollution?

MR. EDELMAN: That is correct, Mr. Chairman.

CHAIRMAN WILSON: And, therefore, you would have no objection to a finding by the Board to that effect?

MR. EDELMAN: That is correct. Either affirmatively or by omitting them from the findings that are made.

MR. STILWILL: It was our position, Mr. Chairman, that regardless of the technicalities of the Government that it would seem not to be appropriate to take the Board's time or to go to the expense of bringing a witness from a long distance to prove something that is not in issue at all.

(Off the record.)

CHAIRMAN WILSON: I might say as far as any other parties than the Government and Allied Laboratories, that we are going to adjourn shortly after we dispose of this question as to Allied Laboratories and we will adjourn, when we adjourn, until 8:30 in the morning.

MR. STILWILL: It may be stipulated by and between the Allied Laboratories and the Government that there is no evidence in the record of any pollution by the Allied Laboratories at this time and, to the contrary, that there is no such pollution, and that --

MR. EDELMAN: -- that we have no knowledge of any evidence which would indicate such pollution.

MR. STILWILL: And that no objection will be made to the final findings of the Board in finding no such pollution by Allied Laboratories and dismissing them from these proceedings.

MR. STEIN: May we say, this is part of a technical phrase if I can rephrase it, you are causing no discharges to be made which contribute to pollution.

MR. EDELMAN: Which cause or contribute to pollution.

MR. STILWILL: The amendment will be accepted.

CHAIRMAN WILSON: Just a moment. I understood Government counsel in the colloquy that was held off the record to say that the Government was willing to be bound by testimony that has already gone in here on --

MR. EDELMEN: No flow.

MR. STEIN: No flow.

MR. EDELMAN: By Allied Laboratories.

CHAIRMAN WILSON: And whose testimony reported that?

MR. STEIN: Mr. Hopkins' testimony reported that.

CHAIRMAN WILSON: On the basis of --

MR. EDELMAN: Of the engineer report, Exhibit 8.

MR. STEIN: Exhibit 8, Plate 5, which reported that Allied Laboratories had no flow and is not presently causing discharges which cause or contribute to the pollution of the Missouri River.

CHAIRMAN WILSON: And on the basis of that, the Government will have no objection to a finding of fact by the Board that Allied Laboratories is not discharging any pollution into the river?

MR. EDELMAN: That is correct, Mr. Chairman.

MR. STEIN: That is correct.

MR. EDELMAN: The Government so agrees.

MR. STILLWILL: Thank you.

CHAIRMAN WILSON: We are adjourned until 8:30 tomorrow morning.

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WHEREUPON, the hearing was adjourned until 8:30 o'clock a.m. of the following day, at which time the following further proceedings were had and entered of record, to wit:

MORNING SESSION, FRIDAY, MARCH 27, 1959

CHAIRMAN WILSON: The hearing will be in order. Is counsel ready?

Before we proceed with any further evidence, I have received through the mail from Mr. George C. Pardee, the general counsel of the Metropolitan Utilities District of Omaha, a statement signed by Mr. Ralph H. Trester, who was a witness here, with accompanying tables of data giving information on certain questions that were asked of him when he was present but which he was then unable to furnish. Now, I will ask counsel for both parties what, if anything, they want done with this material?

MR. EDELMAN: Mr. Chairman, we have received a copy of the covering letter and we will have no objection to this entire document being introduced into evidence as testimony that Mr. Trester would have given under oath if he were so asked.

CHAIRMAN WILSON: Mr. Davis?

MR. DAVIS: I want to reserve my objections to its competency is all. Will you show that objection at this time.

CHAIRMAN WILSON: You have no objection to the foundation? I mean would you concur with counsel for the Government in admitting that if Mr. Trester were here present he would testify as stated here and would identify and authenticate the attached tables as exhibits?

MR. DAVIS: Well, yes, I am agreeable to that. But I, of course, point out to you, Mr. Chairman, that I have no opportunity to cross-examine him.

CHAIRMAN WILSON: Well, that would not involve any admission of the correctness of this testimony, of course.

MR. DAVIS: No.

CHAIRMAN WILSON: If you want to object to its --

MR. DAVIS: I will agree that if he were here he would say that.

CHAIRMAN WILSON: Then --

MR. EDELMAN: May I suggest, Mr. Chairman, that that be marked as a Nebraska exhibit? My recollection is Mr. Trester was testifying as a witness for the State of Nebraska.

CHAIRMAN WILSON: Very well. Mr. Secretary, will you mark this as Nebraska's exhibit in whatever order is proper, which will include the entire material here, not the covering letter, but the statement by Mr. Trester, signed by Mr. Trester, and the attached tables of data.

MR. SAMSON: Do you have a copy of this, Mr. Davis?

MR. DAVIS: Sir?

MR. SAMSON: Do you have a copy of this?

MR. DAVIS: Yes, I have. I can't locate it but I did get one.

MR. SAMSON: All right. Thank you.

CHAIRMAN WILSON: It was covered in the covering letter that copies were mailed to counsel for both the Government and the City.

SECRETARY AYERS: Nebraska Exhibit No. 2 marked for identification. I shall mark it all, with all the attachments and clip it together, as Nebraska's Exhibit No. 2.

(Nebraska's Exhibit No. 2
marked for identification.)

CHAIRMAN WILSON: Then it will be understood that Nebraska's Exhibit No. 2 is admitted on the conditions stated by counsel and subject to the objections stated by counsel for the City.

(Nebraska's Exhibit No. 2
received in evidence.)

CHAIRMAN WILSON: You may proceed, Mr. Davis.

MR. DAVIS: I call Mr. Huff.

SECRETARY AYERS: You were sworn.

WALLACE W. HUFF

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR DAVIS:

Q. Mr. Huff, you were sworn yesterday?

A. I was sworn yesterday.

CHAIRMAN WILSON: I didn't get his name.

THE WITNESS: My name, sir, is Wallace Huff.

CHAIRMAN WILSON: How do you spell your name?

THE WITNESS: H-u-f-f.

CHAIRMAN WILSON: Your initials?

THE WITNESS: W. W.

CHAIRMAN WILSON: Go ahead.

Q. (By Mr. Davis.) Will you state your name, please, to the record.

A. My name is Wallace W. Huff. I was sworn as a witness yesterday.

Q. Where do you live, Mr. Huff?

A. I live in Sioux City, Iowa.

Q. What is your occupation?

A. I am an attorney.

Q. Were you formerly the County Attorney in Sioux City, Woodbury County, Iowa?

A. I served four years as County Attorney of this county.

Q. During what years?

A. I beg your pardon?

Q. During what years?

MR. STEIN: Mr. Chairman, we will concede Mr. Huff's qualifications as an attorney.

CHAIRMAN WILSON: Go ahead.

MR. DAVIS: I am not --

CHAIRMAN WILSON: I didn't know whether you were establishing expert qualifications or just inquiring for general information.

MR. DAVIS: It occurred to me as a matter of courtesy I should explain why he is here, and so forth.

CHAIRMAN WILSON: Go right ahead.

MR. DAVIS: If counsel doesn't mind, I will interrogate him in my own way.

CHAIRMAN WILSON: Go right ahead.

Q. (By Mr. Davis.) During what years were you County Attorney of Woodbury County?

A. What?

Q. What years were you County Attorney?

A. 1951 through 1954.

Q. Mr. Huff, in what branch of the service did you serve during World War II?

A. I served in the Navy and I am still associated with the organized Naval Reserve.

Q. And hold what rank in the Navy at this time?

A. I hold the rank of Commander in the Naval Reserve.

Q. And in connection with your Naval Reserve work, have you gone on cruises during the past number of years?

A. I did.

Q. On how many occasions? Each year?

A. Each year. I leave the 19th of next month, as a matter of fact.

Q. For where?

A. USS Midway out of Alameda for two weeks.

Q. Mr. Huff, what is your hobby?

A. My hobby has been, ever since I was in junior high school, boating; small boats, that is, of all kinds.

Q. And during the past how many years have you engaged in boating on the Missouri River in its reach between Gavins Point and Omaha?

A. I have owned and operated small boats, recreational type, on the Missouri River since the season of 1946. I now have my fourth boat on the river. They have all been outboard-powered boats. The present one is a 21-foot cabin cruiser powered by two 25 Evinrudes.

Q. Mr. Huff, is there an organization in the City of Sioux City, well, of boaters?

A. There is a -- there is more than one organization in Sioux City. The one that I am affiliated with, the most active one as far as the Missouri River is concerned, is known as the Missouri River Boat Club.

Q. And where is its headquarters?

A. During the winter months we headquarter and work out of the Naval Reserve Armory Building, and in the summer months we have a marina which is located on the Iowa side of the Sioux River about a mile and three-quarters from its mouth, that would be upstream from its mouth.

Q. How many years has that marina been in existence?

A. The boat club has been in existence for about five years, counting this year.

Q. And the place that it is located, you say, is on the Iowa side of the Sioux River on what type of ground? That is, do you own it, do you lease it, or what?

A. What is that?

Q. Do you own your ground or do you lease it, and, if so, from whom?

A. Oh. We have leased this location --we have had other locations --we have leased this location on the Sioux from the City of Sioux City for the past three years and have developed and built the dock facilities on it by our own efforts and own expense.

Q. How many members are there in your boat club at this time?

A. Last year there were 107 members.

Q. (By Chairman Wilson.) How many?

A. One hundred seven members. I might say that a requirement for membership is that the member must own a boat capable of carrying people. About the only people we rule out are model boat builders. We don't require any certain amount of cash outlay or any size of boat, and we have all sorts and kinds. We have them from some 24 feet or better down to 12-foot outboard hydroplanes.

Q. (By Mr. Davis.) What is your position with the Missouri River Boat Club?

A. I am serving as the Commodore and have for the past --

Q. Well, would you apply some sort of a layman's factor to the term Commodore and explain what it means?

A. President.

Q. All right. Was there a meeting held of your boat club last night?

A. Our regular monthly meetings are during the winter months held on the last Thursday evening of every month and they did meet last night.

Q. And what action, if any, was taken by your boat club concerning your authority to speak for them here?

A. There was some discussion of the fact that I had been requested to appear here. I explained to them that I intended to appear speaking for myself and a resolution was passed by about 40-some members present that I need not limit my remarks to my own personal experience but could speak for the organization.

Q. Mr. Huff, before commencing with your detailed testimony, would you care to state to the hearing board your own posotion and that of the club with reference to cleaning up the Missouri River?

A. The attitude of myself and our members is that, of course, anything that improves the river we are not against. We do feel that the present river as it is is satisfactory. We do not feel that boating, recreational boating, has suffered any by reason of the conditions in the Missouri River, nor do any of us feel that recreational boating demands any immediate construction of any sewage disposal plant. We feel that if it is necessary in the future as this community grows it will come, but we don't think that recreational boating requires it.

Q. Mr. Huff, are you familiar with the Missouri River below Sioux City, from here to Omaha?

A. I feel that I am. I have made -- Well, I made three trips to Omaha and back last summer and I don't know in the past three years how many times we have gone. We do it once each year as a club operation when there is more than one boat going. We have in the past years and we will again in June of this year do a joint cruise, as we call it, with the Omaha Boat Club -- they have a different name. They call themselves the Omaha Yacht Club, I think. They come upstream, we go downstream. Wherever we meet and there is an available sand bar we pitch a camp for the night and we pick a moonlit night. The last time we did it there were eleven boats from Omaha coming upstream and there were eleven or twelve from our group going downstream. I judge that there were 80-some people on that sand bar.

Q. Incidentally, where did you foregather last year?

A. That was on a bar just below Decatur, Nebraska, on the Nebraska side where we met last year. Last summer we went to Omaha and about 15 miles below Omaha, just because we had never been below Omaha, then came back up, spent the night on a dock at the South Omaha marina.

Q. Incidentally, can you tell the Board how many marinas there are in Omaha and on north up to Sioux City ?

A. What is that?

Q. How many marinas are there at Omaha and on up the river to Sioux City?

A. In the Omaha area there is a North Omaha marina, which is about 4 1/2 or 5 miles upstream from the North Omaha bridge, the new bridge, and that is on the Nebraska side. At the Ox Arbor Bridge on the Council Bluffs side just below the bridge there is the Council Bluffs Boat Club has got a dock and marina, and at the South Omaha bridge, which is a road bridge, I don't know the number of the highway, on the Nebraska side there is a very fine dock and marina. So there are three that I know of. Coming on upstream there is a marina and a boat club at Moville. That is on the Iowa side. Over at Decatur underneath the Decatur bridge on the Nebraska side there is a small creek of some name or other and there is a marina, a small one, there. And then on up to Sioux City where our organization maintains its marina in the Sioux River.

Q. I believe we all here understand the meaning of the work "marina", but for the sake of the record how are you using that word "marina"? What is a marina?

A. What is a marina?

Q. Yes.

A. I have used the term pretty broadly. A marina, I suppose, strictly speaking, is a dug back into the bank type of operation and that is the way the North Omaha marina is built. Ours in Sioux City, we call it a marina. It is really just a boat dock. We didn't have to dig anything, the Sioux River was there. The way I have used the term marina would mean any place where boats are capable of being serviced or kept or tied.

Q. Mr. Huff, other than the official activities of your club in meeting halfway between here and Omaha, how many occasions would you say during the last year, for example, were you in the southern reaches of this river? That is, how many times did you go to Omaha or thereabouts?

MR. DAVIS: I will withdraw the question, Mr. Chairman.

Q. (By Mr. Davis.) Mr. Huff, do you on other occasions go south of Sioux City on the river?

A. Yes. We don't always go clear to Omaha, it is quite a jog; it takes about eight and a half hours each way by boats of our sort. We go down in the vicinity of the Dakota City area, and immediately below on the Iowa side there are a number of sand bars just below the Sioux City Air Base and they are usually pretty well populated on Sunday afternoons, and so forth, by recreational boating parties out of our organization or others. The last time I did an all-night trip on the Missouri River was the weekend of November 1 and 2 of last year and we went downstream on that occasion. We only went about 25 miles, maybe, from the combination bridge. The hunting season was on and we had a race with darkness to find a spot that we could get in and camp on because of the large number of boats of all sorts, particularly duck hunters and their blinds, that we didn't want to get in between, upset their sets. Starting in October on out, starting actually in September, the river, and particularly downstream between Sioux City and Decatur, on Saturdays and Sundays is literally full of small boats and the duck hunters with their blinds setting up their sets, so we try to avoid them as much as we can so as not to disturb their setup.

Q. Have you ever with your family stayed overnight south of Sioux City in this stretch of the river?

MR. DAVIS: I withdraw the question.

Q. (By Mr. Davis.) Mr. Huff, what activities have you engaged in south of Sioux City, such as picknicking, and so forth?

A. We have, as I have said, water skied; my family, my boys, water ski. There is a pretty good spot not too far below the Air Base on the Iowa side where the water is reasonably deep and it is still not the channel, and that is the kind of a place we try to find to water ski. I prefer not to water ski out in the open channel itself simply because it is too much trouble to pick up the skis. If you fall there you have got to get the skis first or they will go to Omaha while you are getting your skier. So we try to find what we call a pass where it is relatively deep but we still don't have too much current and enough room to turn the boat, and that is where we do our water skiing. So I have, and have others in our organization, picnicked on the bars below with our families and water skied.

Q. Mr. Huff, have you ever seen people swimming in the river below Sioux City?

A. Yes, I have swum in the river below Sioux City many times.

Q. Is it a common thing?

A. What?

Q. Is it a common thing?

A. I would say it is a common thing.

Q. Of course during warm weather. Have you ever seen individual game fishermen -- And, incidentally, Mr. Huff, all my questions are directed as to south of Sioux City. That is all involved before these folks. Have you ever seen game fishermen south of Sioux City?

A. Oh, yes, of course. There is a great deal of fishing, particularly along the rapping and piling work that the engineers have done.

Q. Where is that, all the way down the river or where in particular?

A. All the way down, particularly in the vicinity of the railroad bridge, which is just a bit south of the mouth of the Floyd, and then on the Nebraska side on down about four miles where the channel crosses on over to Nebraska and goes by where Dakota City would be if it reached the river.

Q. I take it you are not a game fisherman?

A. I haven't fished in the river for a number of years, although we carry the equipment and ordinarily on an overnight there is somebody in the boat that wants to put out a line, so we just carry along this bottled catfish and put a line out and if we catch a fish, fine, and if we don't, fine. I have in years gone by set lines and run lines, caught catfish out of the river, both above and below.

Q. Do you know whether or not there is any commercial fishing carried on below Sioux City?

A. I, of course, know there is. I know many of the people who fish the river. As a matter of fact, we kept our -- When our boat club was first organized we kept our boats in the land on the south--I mean the Nebraska side, the South Sioux side, of the Missouri River just under the combination bridge where a man by the name of Frank Keller, who is somewhat of a commercial fisherman, kept his eye on our boats for us, and so forth.

Q. Mr. Huff, all these years that you have been on the Missouri River and with your acquaintance with the boat owners in Sioux City, commercial fishermen, the friends you have made from the Omaha club, have you ever heard of anyone becoming afflicted with any water-borne disease from the Missouri River? Do you know of any case of illness arising from the use of the river?

A. The fish or --

MR. DAVIS: Better read it to him.

(Question read.)

A. I do not.

Q. (By Mr. Davis.) Mr. Huff, as far as the sewage from Sioux City being discharged into the river, has that in any way acted as a deterrent on the activities about which you have testified?

A. It has not.

Q. Is it any factor at all in deciding, you making your decision, as to what reaches of the river are used in your activities?

A. Not as far as recreational boating is concerned, it is not a factor.

MR. DAVIS: You may cross-examine.

MR. STEIN: Thank you. We have no questions.

MR. DAVIS: Thank you, Mr. Huff.

CHAIRMAN WILSON: Just a minute. We always have questions by members of the Board, if they wish to ask any.

Dr. Van Heuvelen.

Q. (By Dr. Van Heuvelen.) I want to ask questions concerning swimming. Have you ever gone swimming just below the mouth of the Floyd River?

A. Where?

Q. Just below the mouth of the Floyd River?

A. No, I have not.

Q. Would you have any personal objection to going swimming in that area?

A. I have been in the water there, sir. Not to swim, but because I hung up on a bar last August.

Q. But you would not find that water objectionable to you as far as swimming in it is concerned, immersing yourself in it is concerned?

A. If you are speaking of the area from the mouth of the Floyd and therein down to the engineering dock, I wouldn't swim there because there is just no beach, there is nothing to attract me to want to swim there. We swim off of sand bars, sir.

Q. That is the only reason you would not swim there?

A. Yes.

DR. VAN HEUVELEN: That is all.

MR. KURYLO: I have a few questions.

Q. (By Mr. Kurylo.) Are you trained in the field of public health?

A. Can't hear you, sir.

Q. Are you trained in the field of public health?

THE WITNESS: Will you repeat his question?

(Question read.)

A. No, I am not.

Q. (By Mr. Kurylo.) Do you feel that you would be competent from a public health viewpoint to testify on the existence of pollution or the non-existence of pollution on the reach of the river being discussed here?

A. I have no special qualifications for such.

MR. KURYLO: I have no further questions.

MR. SAMSON: I have a question or two, Mr. Huff.

Q. (By Mr. Samson.) Your marina is located about a mile and a half up from the mouth of the Sioux River, that is upstream from the mouth of the Big Sioux River, is that a fact? Or am I confused? Where is your marina located?

A. Do we go upstream, is that what you are saying?

Q. No. Mr. Huff, where is your marina located in respect to the mouth of the Sioux?

A. It is up the Sioux River about a mile and three-quarters on the Iowa side of the Big Sioux River.

Q. I see.

A. Yes, sir.

Q. Are there any sewer outlets from the City of Sioux City draining into the Missouri River upstream from where your marina is located?

A. I really can't answer that. I think there is one up in the Riverside area of Sioux City, but I don't know for sure. I think there is.

Q. Yes. Now, you are somewhat familiar, aren't you, with the sewer outlets along the north bank of the Missouri River in the Sioux City vicinity?

A. If the location of commercial fishermen's dip nets is any indication that that is where they are, I know about where they are. Actually, you see, sir, the channel does not run along the Sioux City waterfront. From the mouth of the Sioux you go diagonally across the river to South Sioux City, where we go down and we come back to the Iowa side in the vicinity of the Virginia Street municipal dock and then on down. So what exists between the mouth of the Sioux and a location below the auditorium, I am not very familiar with.

Q. Have you noticed the sewer outlets, then, down in the neighborhood of the Floyd River as you have gone down?

A. I know they are down there because I have seen them down there in the vicinity of the --

Q. Have you ever noticed anything come out of them?

A. What?

Q. Have you ever noticed anything come out of those sewers?

A. Never paid any attention to them, no, sir.

Q. Ever noticed any odor or smell down there?

A. Well, when the wind is right when you are going by the Sioux City stockyards there is definitely an odor and a smell, but I don't know whether it is coming from the water or the hog chutes.

Q. But you have never particularly noticed any matter coming out of those sewers down in the vicinity of the Floyd River.

A. I have never actually paid any attention to them. I have never gone to observe to see what they are doing. There is one that I think of is higher than the average water level that is somewhere in the vicinity of the stockyards area above the mouth of the Floyd and it seems to have a pretty constant flow of water spilling out of it, and what its pollution content is or anything else I don't know.

Q. I was wondering, have you noticed any coloring in it?

A. It is a brownish dark color.

Q. Do you think that if there are -- Do you feel that if there are such matters coming out of the sewers in that general neighborhood that that has any effect on the recreational value of the river?

THE WITNESS: Read me the question, please.

(Question read.)

A. Well, recreational value of the river is broader than boating. Now, if you are including fishing, swimming in that immediate area, I would say yes. But strictly recreational boating, most of us don't go to swim and fish.

Q. (By Mr. Samson.) I meant the entire over-all recreational picture and I believe you have answered my question, Mr. Huff. Thank you very much.

A. Well, of course it would have some effect on the over-all picture of recreational use of the river, but in the immediate area of Sioux City. This river is awful big and awful long and there is lots of river up and there is lots of river down, and to actually have to use it right here within the confines of the city limits of the City of Sioux City, it would never be necessary.

MR. SAMSON: Thank you very much.

CHAIRMAN WILSON: Any more questions? That is all.

(Witness excused.)

DON PENDLETON

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DAVIS:

Q. Will you state your name to the Board, please?

A. Don Pendleton, P-e-n-d-l-e-t-o-n.

Q. You were sworn in yesterday?

A. That is right, yes.

Q. What is your profession?

A. Lawyer and City attorney of Sioux City at the present time.

Q. How long have you been City attorney?

A. Since May 1958.

MR. STEIN: Mr. Chairman, if Mr. Davis is qualifying the witness as an attorney, we will concede his qualifications.

Q. (By Mr. Davis.) In your capacity as City attorney have you had to deal with the question of the securing of money to pay for the interceptor sewer to be installed this year under the new Interstate Highway from Perry Creek east down the river?

A. Yes, I have.

Q. What is the procedure set up which the City is going to follow to raise this money?

A. They plan to pay part from the sewer rental fund and part from the issuance of revenue bonds.

Q. And what portion of that expense is going to be paid from sewer revenue bonds?

A. Well, we are not exactly sure yet. It will depend on the situation when the contract is completed. I think possibly the finance office can tell you what is set up in the budget on that.

Q. But as least a portion of this expense is going to be paid for from revenue bonds issued against the sewer rental fund?

A. That is right, yes.

Q. In connection with the issuance of revenue bonds under Iowa law, how does the City proceed towards having them issued and selling them?

A. Well, they go through the procedure according to Iowa law. Is that what you mean?

Q. Yes. And are those procedures set up for us by --

A. Set up by statute.

Q. By Statute. Now, Mr. Pendleton, once that these sewer revenue bonds are issued this year is it possible from a legal point of view alone, disregarding any salability of the bonds, and so forth, that more sewer revenue bonds be issued?

A. Legally yes, providing they are issued to come due after the present revenue bonds come due and the interest also at that time.

Q. I see. Would you know the number of years over which this present contemplated bond issue will be paid off?

A. No, I don't. I believe it is 20 years.

Q. Twenty years. What is the situation with reference to Iowa law at the present time as to whether additional sewer revenue bonds may be issued which obligate the proceeds of the sewer rental income?

A. Well, the Supreme Court in a recent decision has kind of put the revenue bond situation in the State of Iowa in confusion. I will cite the name of the case. It is Miehls, M-i-e-h-l-s, versus City of Independence.

Q. And what is the citation, Mr. Pendleton?

A. The citation of that is 88 N.W. (2d) 50, which states that once you pledge the funds on a revenue bond issue, why, then you can't pledge them a second time unless you have the maturity dates at the conclusion of when the present bond issue is.

Q. In other words, the present law in Iowa is that you can not issue subsequent revenue bonds on the same fund unless they are to fall due after the preexisting issues?

A. That is right.

Q. And in this case would be 20 years?

A. That is right. I am not sure of that. Mr. Rugg can probably testify as to the actual situation.

Q. I do not recall, Mr. Pendleton, whether or not you were in court when Mr. Ristau testified concerning the City's financing of its portion of the Floyd river flood control project, but I can assume, can I not, that you are completely familiar with that subject?

A. That is right, yes, sir.

Q. Do you know what the city's share of the non-Federal fund portion of the expense will be?

A. I think what Mr. Ristau said yesterday of $3,600,000 would be about right.

Q. Did the city, through a resolution enacted by the Council, on October 27, 1958, give the United States Government the assurances which it required concerning the part that the city was going to play in the project?

A. That is right, yes.

Q. And in connection with that did your department give the Federal Government or, in fact, by your own personal certificate a statement as to the authority of the city to make those assurances to the Government?

A. That is right, yes.

Q. What is the status now of the matter of the city financing its portion of this project?

A. Well, the Government is insisting, or it is the Corps of Engineers, that we proceed and line up the financing of it.

Q. And how far along are we at this time?

A. Well, we are in the discussion stage, I would say. We haven't started any proceedings for the issuance of the bonds.

Q. Do you have an opinion as to the manner in which or the only manner in which the City of Sioux City can finance its portion of this project?

A. Well, we believe that general obligation bonds will be issued to pay for the project, that is the Floyd River project.

Q. And in what amount will these bonds be, exclusive, of course, of interest?

A. Well, possibly the $3,600,000. We haven't arrived at an exact figure on that.

Q. How much lower could it possibly be than that, if you have any idea?

A. I have no idea on that.

Q. Not a great deal?

A. No.

Q. When do you forecast that these bonds will be issued and sold?

A. Well, the Government seems to feel they should be issued -- of course I think he testified that they would be ready to go next year, so sometime in the latter part of this year.

Q. In other words, the city will be required to do that during the latter part of the calendar year of 1959?

A. That is right, or have sufficient assurance so the Government will feel that they can proceed.

Q. Mr. Pendleton, as part of the official records of your office, do you have the files and records in connection with the condemnation of the land for the site of the sewage or proposed sewage disposal plant?

A. Yes.

Q. Which is designated as plant site on Sioux City Exhibit No. 1 and appears in a plate as part of the Government's Exhibit No. 8. Do you have those records?

A. Yes, I have the office file.

Q. On what date, if you know, did the Sheriff's Jury make a condemnation award to the land owners for this proposed plant site?

A. I believe the date was October 3, 1957.

Q. And can you tell the Board the amount of the compensation or award that was made by the Sheriff's Jury to the land owners involved?

A. $56,427.

Q. Now, under Iowa law after such an award is entered what procedures are available to either the land owners or the condemner if they feel aggrieved about the amount of the award?

A. They have the right to appeal into District Court and that is the status of the matter at the present time. The land owners have appealed the condemnation award into the District Court of Woodbury County, Iowa. I might mention here, under Iowa law the possession of this property can be taken at any time after the condemnation, or Sheriff's Jury makes the award, by the city paying this amount into the hands of the Sheriff.

Q. That is, the fifty-six thousand four hundred?

A. That is right, yes. So that possession can be taken of this property --

Q. While the appeal is pending?

A. While the appeal is pending, that is right.

Q. And you say the appeal is to the District Court, that is you mean our State Court here in the State of Iowa?

A. That is right, yes.

Q. That appeal was filed by the land owner?

A. That is right.

Q. And what is its present status in District Court?

A. It is at issue and ready for trial.

Q. Now, I would take it that at any time following the entry of the award the city could abandon the proceedings,. could it not?

A. That is right.

Q. Has the city been requested to abandon the proceedings?

A. They have by the land owners.

Q. And what has been the official position of the City?

A. They have refused to do it.

Q. So the action is still under way?

A. That is right.

MR. DAVIS: You may cross-examine.

CROSS-EXAMINATION

BY MR. EDELMAN:

Q. Mr. Pendleton, did I understand you correctly to say that on the basis of your opinion there was no legal impediment to the issuance of revenue bonds by the city to finance the construction of additional interceptor sewers and sewage treatment works?

A. There could be after. At the present time there is none. If we issue the bonds we plan, there is going to be some difficulty unless that difficulty can be ironed out by the Iowa Legislature.

Q. You referred to the Miehls case, I believe it was --

A. Yes.

Q. --as creating that difficulty?

A. Yes.

Q. Do you base your opinion on the court's holding in the Miehls case?

A. Yes.

Q. Is that the advance sheets that you have?

A. Yes.

Q. You are aware, Mr. Pendleton, that the opinion as reported in the advance sheets has been modified, are you not?

A. That is right, yes. I have the --

Q. And as modified that opinion says clearly, and I quote from page 55 of the permanent-bound volume at 88 N.W. (2d), "We see no objection to the issuance of additional revenue bonds to mature following the maturity of all outstanding bonds previously issued or where an adequate sinking fund has been provided for full payment of such outstanding bonds."

A. I have an opinion here of Chapman and Cutler, you are probably familiar with the --

Q. I asked you whether this statement which I read from the court's opinion --

A. That is in the supplement to the opinion, that is right.

Q. The Miehls --

A. They are to mature following the maturity of all outstanding bonds.

Q. That is right. And that would not raise any legal question?

A. It would if there are any bonds issued. Right?

Q. That is a question of different interpretation. I thought the court's opinion was very clear.

A. Well, I have also, if I may state this --

Q. I am not asking you. Are you volunteering information for me?

A. O.K., I won't volunteer.

Q. I always instruct my witnesses not to volunteer. The Miehls case did not involve Iowa laws applicable to the financing and construction of sewage treatment works, did it?

A. No, it did not.

Q. It involved electric revenue laws, did it not?

A. That is right.

Q. How long, if you know, have discussions been going on with the Corps of Engineers concerning the Floyd River flood control project?

A. Well, several years. Of course the project was passed, I believe, in 1958 by Congress.

Q. But the city has been having discussions with the Corps of Engineers as far back as '53, has it not?

A. I believe they have, yes.

Q. In connection with the possible legal questions as to the issuance of additional revenue bonds, since this is a matter that arises under state law have you sought the opinion of the Iowa State Attorney General?

A. No. Under -- I don't believe he has issued an opinion on this matter. I haven't sought it, no. Under Iowa law the cities have no right to get an Attorney General's opinion.

Q. I appreciate you might not be entitled to an Attorney General's opinion. Have you sought his advice?

A. No, I have not.

MR. EDELMAN: At this time I move to strike the testimony of this witness as to the effect of the Miehls case on the ground that it is incompetent, irrelevant and immaterial and without proper foundation. This is a matter of domestic law which is not subject to proof by expert or oral testimony. The state of the law is not a question of fact to be proved by a witness of this kind. This witness has no authority to issue any rulings or binding orders which have the effect of law and according to what he has expressed as a matter of interest are his personal views which should be stricken on the grounds stated.

CHAIRMAN WILSON: The testimony may stand subject to the objection and motion.

MR. EDELMAN: We have no further questions, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. DAVIS:

Q. Mr. Pendleton, you were asked about the length of time the Floyd River project has been considered or discussed by the city. Do you know whether or not that Congress has previously to '58 authorized the funds for it, that it --well, just answer that question. Had the funds been authorized by Congress previously?

A. No.

Q. Were bills--

A. When I say discussed, of course it has been discussed ever since probably 1880 or sometime because of the death rate during the various floods we have had on the Floyd River.

Q. On at least one occasion have the funds been authorized and President Eisenhower vetoed the bill which included this authorization?

A. That is right, yes, either once or twice.

Q. But presently we are going ahead on the assumption that they will be authorized?

A. That is right. The Project is authorized but not the funds. They have authorized $150,000 for the survey.

Q. Now, Mr. Pendleton, you were asked by counsel concerning the final decision of the Supreme Court in the Miehls case as it appears in the bound volume. You were, of course, aware of that?

A. Yes. I have a copy of their supplement here.

Q. And did the municipalities in the State of Iowa appear as amicus curiae in this matter of the rehearing or not?

A. They did, yes, the City of Sioux City was one of those appearing.

Q. In an effort to get the Supreme Court to modify their previous decision to an extent that it would permit the issuance of revenue bonds on the same funds concurrently, is that correct?

A. That is right.

Q. Now, you have, therefore, worked with this particular portion of the Iowa law for a period of a year or more now, is that correct?

A. That is right, since last May. I believe--

Q. Now, does the Attorney General have anything to do with the approval of the issuance of bonds, revenue bonds, in the State of Iowa?

A. No.

Q. And the actual procedure which I was touching on your direct examination but I think we have misunderstood each other, the actual procedure concerning the legal approval for the issuance of these bonds is what when the city goes to issue them?

A. Well, we generally get a legal opinion of a law firm that specializes in bond proceedings.

Q. Now, in order to sell revenue bonds is it necessary at the present time or has it been for 20 or 30 years to get an approving opinion from bonding attorneys in Chicago or New York before they can be sold?

A. That is right.

Q. And what two firms are the only firms that have dealt in this matter?

A. Well, the only firm that I have dealt with has been Chapman & Cutler. I believe Wood, King & Dawson have done former work for the city.

Q. Wood, King and Dawson in New York City?

A. Yes.

Q. And their opinion would be accepted by the bond buyers, correct?

A. That is right, yes

Q. Now, I will ask you whether or not, Mr. Edelman's opinion notwithstanding, under this decision as it now stands the city can secure from any accredited bonding attorney an opinion or approval of issuing additional bonds which mature before previous issued have been paid off?

A. We can not.

Q. Now, according to that, then to interpret what you have just said, once this present interceptor is paid for, those revenue bonds are issued, can we issue subsequent revenue bonds on that pledging the funds from that same fund, the sewer rental fund?

A. Of course I am giving my own opinion, I have an opinion here of Chicago bonding attorneys. The bonds could be issued but nobody would probably buy them. That is about the extent of it.

Q. In other words, you couldn't get a competent bond attorney's approving opinion?

A. That is the difficulty.

Q. Mr. Pendleton, I will ask you if you know if the municipalities in the State of Iowa, with the advice and guidance of these bonding attorneys, have sponsored and had introduced in our legislature legislation to take care of the situation?

A. There is a bill pending in the state legislature on this matter.

Q. Do you know, do you have any present knowledge as to the status of that?

A. It hasn't been passed and I don't believe it is out of committee.

Q. We have no assurance at all that the legal situation of which you speak will be remedied by the legislature?

A. That is right.

MR. DAVIS: That is all the questions I have, Mr. Chairman.

CHAIRMAN WILSON: Any questions, Counsel?

MR. STEIN: We again renew the motion to strike on the grounds that Mr. Edelman made before, that this is a matter of domestic law for decision by the court and not subject to proof by expert or other testimony.

CHAIRMAN WILSON: The motion is denied and the testimony may stand subject to the objection.

RECROSS-EXAMINATION

BY MR. STEIN:

Q. Mr. Pendleton, you have no assurance, you said, that this law is going to pass in Iowa, is that correct?

A. That is right.

Q. You talked about the --

A. We would like --

Q. --Floyd River project up before the Congress. Do you have an assurance that that is going to pass?

A. No.

MR. STEIN: Thank you. That is all.

Q. (By Mr. Samson.) I have got a question or two, Mr. Pendleton. What generally under your Iowa procedure is the method or custom set up in this matter concerning general obligation bonds? What is the procedure to put that into gear?

A. Well, we can issue general obligation bonds up to a certain limit and I think the finance director will go into our financial situation a little more fully.

Q. Would you be in a position to answer the question as to whether or not the issuance of general obligation bonds is contingent upon a vote?

A. On the sewage disposal plant?

Q. No, I am talking about general obligation bonds.

A. Some are and some aren't.

Q. Well, how do you mean that, now? I mean you have left --

A. Well, the Iowa law--excuse me just a second. Section 408A or chapter, pardon me, chapter 408A of the 1958 Code of Iowa is the provision on the matter of elections, which provides that any bond issue over a certain amount --

Q. How much is that amount?

A. As far as Sioux City is concerned it is $75,000. There has to be an election with certain exceptions.

Q. Well, then in connection with your Floyd River flood proposal which involves $3,600,000. would that have to be submitted, the question of the issuance of general obligation bonds, would that have to be submitted to a vote of the people of Sioux City, in your opinion?

A. In my opinion it probably would be, at least certain--we can issue bonds, general obligation bonds, for streets and bridges. We might be able to do part of it without an election. Part I am sure we can't do without an election.

Q. Well, for the most part you would have to submit the issue of the general obligation bonds to a vote of the --

A. That is right.

Q. --citizens of Sioux City, isn't that right?

A. That is right, yes.

Q. Now, the areas involved is a relatively small area as far as Sioux City is concerned--

A. That is right.

Q. --in this proposed flood project, isn't that right?

A. That is right.

Q. That is, for the most part --

A. Well the Floyd Valley I suppose covers maybe, oh, a third or a fourth of the town.

Q. That is physically speaking?

A. Yes.

Q. But the people involved would be a very small percent?

A. That is right.

Q. Isn't that right?

A. Yes.

Q. Well. of course I don't like to have you prognosticate and if it is embarrassing to you you don't need to answer the question, but what is your frank opinion on what the outcome of that kind of an election would be where most of the people would not be involved in the flood project as to whether or not they would vote to obligate the entire city for a project that is restricted like that? I mean if you don't want to answer it, you don't have to.

A. No, I would be glad to answer that, but of course it is a matter of conjecture, as you realize, and the fact that we have lost 45 lives in floods here in the Floyd Valley has made it practically imperative that something should be done and we feel that the people of Sioux City as a whole probably should share the burden rather than the few in that district.

Q. Do you feel that an election where that proposition was submitted, that is the issuance of general obligation bonds to the amount of over three million dollars, that you would get a favorable vote on that?

A. Well, we hope to. We feel that the business interests in Sioux City and a lot of the people, regardless of where they live, are in favor of it.

Q. Now, another question here, did you prepare the ordinance that involves the sewer rental fee?

A. No, I did not. That was before my time.

Q. I see. How long has that been in existence?

A. Well, it is four or five years, I would presume.

Q. Generally, just very generally, what are the schedules or on what basis is the rental fee set up according to your ordinance?

A. I think I would rather have the next witness answer that. He could probably give you the definite details.

Q. Mr. Pendleton, do you know generally how much income there is from the sewer rental fee?

A. Offhand, no. It did pay for the first interceptor sewer project. That was paid out of that fund.

Q. Out of that fund?

A. Yes.

Q. Where are the monies that are received by the city from the sewer rental fee placed? Do they place them into a special fund?

A. That is right.

Q. Or into the general fund of the city?

A. No, it is a special fund.

Q. And how is that fund entitled?

A. I believe Sewer Rental Fund.

Q. I see. Would you be so kind, Mr. Pendleton, as to give the Board the sum total amount of the revenue bonds which have been issued in connection with the construction of the interceptor, if you know?

A. We have issued no bonds to date in connection with the sewer interceptor.

Q. There have been no bonds issued at all?

A. That is right.

Q. Then how--

A. We are in the stage --we have let this contract now which we plan to pay for partially out of revenue bonds.

Q. And what is contemplated in the total amount of revenue bonds to be issued?

A. That is something we don't have the answer to. I doubt if anybody does because it depends on the amount in the sewer rental fee at that time.

Q. I believe, Mr. -- Have you finished your answer? I didn't mean to interrupt you.

A. Yes.

Q. I believe Mr. Mullinex testified yesterday that some $825,000 worth of work had been done or contracted for in connection with three sewers, is that right.

A. That is right, yes, sir.

Q. Then are we to understand that part of that has been paid for by funds out of the funds set up from the sewer rental fee?

A. I believe about $300,000 has, yes.

Q. Which leaves that a balance -- $330,000 out of the $550,000?

A. No, no. Out of the eight hundred. The first project was paid, I believe, out of the Sewer Rental Fund. Now, the second project, which, of course, isn't under way yet but should be under way very shortly, is not paid for.

Q. That involves, if my computations are correct --

A. About $550,000.

Q. --about $550,000, is that right?

A. That is right, yes.

Q. What amount of money is presently in the fund which is set up from the sewer rental fee?

A. I will have to answer that that we will furnish you that information. I think possibly the next witness can do it.

MR. SAMSON: Oh, fine. Thank you, Mr. Pendleton.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: Wait just a minute.

MR. DAVIS: I might say to Mr. Samson, on the question as to the exact status of the funds and so forth I am going to use our finance director.

MR. SAMSON: Fine. If I had known that I wouldn't have asked him.

Q. (By Mr. Samson.) Mr. Pendleton, has the City of Sioux City taken possession of the treatment plant site near the Floyd monument?

A. We have not, no.

MR. SAMSON: I believe that is all. Thank you.

MR. DAVIS: Mr. Pendleton, one question only with regard to Mr. Samson's questions.

REDIRECT EXAMINATION

BY MR. DAVIS:

Q. He is asking you for your conjecture about the passage of any or the success of any referendums that might be necessary in connection with the flood control project and mention was made as to the area by you involved and he mentioned that few people lived there. Would you be able to say how many people work there whose livelihood depends on that area not being flooded?

A. I don't have those figures. There would be quite a few.

CHAIRMAN WILSON: Mr. Metzler, you have a question?

Q. (By Mr. Metzler.) I want to ask a single question. Can money from the Sewer Rental Fund be used to help meet a portion of the city's contribution to the flood control project?

A. No, it can not.

MR. METZLER: That is all.

CHAIRMAN WILSON: Mr. Poole.

Q. (By Mr. Poole.) My question is, apparently on this section of interceptor that you are just getting ready to build, you have a certain amount of money in your Sewer Rental Fund and you expect to issue bonds to make up the difference for that about $550,000 project, as I recall yesterday's testimony. Couldn't you issue general obligation bonds for that amount and thereby never create this situation as far as the other bonds are concerned?

A. We can issue general obligation bonds on that, yes. We might have a little difficulty or the difficulty is the Floyd project again.

Q. It would be a few hundred thousand dollars, though, at the most, isn't that correct?

A. Yes.

Q. Then by merely issuing general obligation bonds to finance this section of the interceptor, you do not cloud the issue as far as existing Iowa law is concerned on other revenue bonds?

A. No, except we might meet the problem again if we put in another interceptor sewer.

MR. POOLE: Oh, obviously, if you are going to build a little piece at a time.

MR. JONES: Mr. Chairman, I have a question.

CHAIRMAN WILSON: Go ahead, Mr. Jones.

MR. JONES: It ties in with Mr. Poole's question.

Q. (By Mr. Jones.) You mentioned you contemplated financing the balance of the construction of these segments of the interceptor by issuing revenue bonds?

A. That was our present plan, yes.

Q. And that the bonding companies would frown upon furnishing any more money to continue because of the fact that they would be coming before the others were paid off?

A. That is right.

Q. It strikes this member of the Board kind of funny that any bonding company would agree to finance a few segments of the project, jut out on a limb, and the project never be finished.

A. Well, of course, a lot of the revenue projects have been carried on that way through the years in Iowa where they have done it segment by segment.

Q. But these wouldn't mean anything other than some pipes under some fills for a highway crossing, something like that?

A. Well, that is what these two interceptor sewers have been placed in at the present time.

Q. My experience has been that any bonding company would like to see a plan finished, not go out on a few sections leaving the rest of it undone.

A. Well, that is, of course, the question, if we issue bonds for the entire project at one time, why, I don't know what the situation would be as far as the city is concerned.

MR. JONES: That is all I wanted to bring out, that it looks mighty funny that they can finance a few little pieces of an interceptor sewer and leave the main part of it go and not agree to furnish the money to finish it. That is the only point I want to bring out.

Q (By Mr. Davis.) Would you care to comment, Mr. Pendleton, on his comment?

A. Well, no, other than that this is the way that the city has proceeded on most of their water projects and sewer projects, and so forth.

Q. (By Mr. Jones.) But that goes right back to Mr. Poole's question, that you finance these little pieces and the issue from then on is clouded until those bonds are paid off.

A. Well, it could be clouded, that is right, if we proceed that way and that was our plan. Now, of course, we--there is a possibility that legislation can be passed. Of course you can't rely on that.

Q. There is also a possibility that a plan could be initiated now that wouldn't set up that problem?

A. Well, that is right. If we issue the entire amount in revenue bonds, why, I presume a bonding attorney would pass it.

MR. JONES: I was just looking at it in the manner of what good are a few little pieces if you can't build the rest of it for the next 20 years.

CHAIRMAN WILSON: Mr. Kurylo.

MR. KURYLO: Yes, I have questions along the lines that Mr. Jones asked just to clarify things in my own mind.

Q. (By Mr. Kurylo.) Some of this may be repetitive but I hope you will forgive me for it.

A. Surely.

Q. I understand that you have testified that thus far no revenue bonds have been issued?

A. That is my understanding, on the sewer revenue bonds.

Q. On the obligation Sewer Rental Fund?

A. That is right.

Q. That it is also my understanding from your testimony that the city is considering the issuance of revenue bonds which would pledge the sewer rental funds to finance the cost of the interceptor sewers now being constructed?

A. That is the way we had it planned, yes.

Q. And that you are considering having those bonds financed within the next 20 years, mature within the next 20 years?

A. I am not sure of that. I think the Finance Director will probably answer that question.

Q. At this time and under Iowa law would it be necessary for the City Council to seek a vote of the people on the issuance of revenue bonds which would pledge the sewer rental fund?

A. No.

Q. Under Iowa law would the City Council need approval of the people by an election to increase the payments in the Sewer Rental Fund or the sewer rental fees?

A. No. The City Council can do that as long as it is within reason.

Q. Under Iowa law there is presently no prohibition, and you can cite one if there is one, against having the City Council develop now or in the near future a financial plan which would permit the issuance of revenue bonds as needed to undertake a long range sewage disposal program?

A. It is my opinion they could issue revenue bonds for the whole project at the present time.

Q. And is it --

A. Providing it is financially feasible.

Q. Is it your opinion also that the issuance of the individual bonds could be so scheduled as to permit receipt of adequate funds by the city to pay for the interceptor sewers now being constructed when those bills become due?

A. I would rather have the Finance Director answer that.

Q. I am asking, this is a legal question, sir.

A. Would you restate the question, please?

(Question read.)

MR. SAMSON: Before you answer that, would you accept an amendment to that?

MR. KURYLO: I intend to.

Q. (By Mr. Kurylo.) And to provide for issuance of further bonds to cover future obligations as they become due?

A. You mean that if we provide in the bonds that we issue now that we can issue further ones? There is a little confusion on that. We are not absolutely sure of the answer because of the Michls case. It would --

Q. Let me restate my--

A. It would probably appear that we could. I believe it might affect the merchantability of the bonds.

Q. Let me restate my question, then, to be sure that there is no misunderstanding on my part as to what might be possible. Could the City Council, by action of its own and without seeking election by the people, undertake a financial plan pledging the receipt of the Sewer Rental Fund at the present rate or an increased rate which would make it possible to undertake the financing of a sewage disposal system?

A. It is my understanding that they could not at present rates. There would have to be quite an increase in the rates to do it, if that answers your question. They can do it.

MR. KURYLO: That answers my question.

CHAIRMAN WILSON: Any other questions?

MR. SAMSON: Well, I have a question.

Q. (By Mr. Samson.) What is your information on what the amount of that increased rate would amount to?

A. I couldn't answer that. Possibly we can get that for you later.

Q Well, as I understood an answer to a preceding question, it is your opinion that the $6,121,000, which there is some evidence in the record to the effect it will cost you to set this thing up properly as far as cleaning up the pollution situation is concerned, is that it would be possible for the city by action of the City Council, if they so desired, to have issued revenue-producing bonds based upon this sewer rental fee which is now charged to issue all those bonds at the present time?

A. It is legally possible, yes.

Q. But as I understand, the present City Council has not asked you or inquired of you to prepare such a project, is that right?

A. There has been no specific request to prepare such a project, no.

MR. SAMSON: I think that answers my question.

MR. KURYLO: I have a few other questions.

CHAIRMAN WILSON: Do you have another question?

MR KURYLO: Yes.

Q. (By Mr. Kurylo.) Assuming that the City Council decided now to issue revenue bonds pledging the receipts of the Sewer Rental Fund to finance the cost of the interceptor sewer now being constructed, would it be possible under Iowa law as it now exists for this City Council or a subsequent City Council to issue additional revenue bonds pledging the receipts of the Sewer Rental Fund at the existing rate or at a higher rate with the maturity date of the subsequent bonds to be beyond the date of the maturity date of the bonds that would be issued initially?

A. Yes, they can issue that.

CHAIRMAN WILSON: Any other questions?

MR. POOLE: I have a question.

CHAIRMAN WILSON: You have a question, Mr. Poole?

MR. POOLE: I wanted to see if I couldn't pin this down.

Q. (By Mr. Poole.) As I understand, from a legal standpoint-- we are leaving out the fianancial end of it--there are at least two ways that you can keep the decks clear to build the entire sewage treatment project. One would be to start with a revenue bond issue that is large enough for the whole works and then to pay for this contemplated interceptor out of that or the other one would be to pay for the contemplated interceptor out of general obligation bonds and then follow up with a revenue bond issue for the rest of the work?

A. You can issue both general obligation and revenue bonds.

Q. In other words, there are two ways, then, legally that this present work can be financed without clouding the issue of financing the rest of it?

A. That is right, yes, if full revenue bonds are issued in sufficient amount along with general obligation bonds.

CHAIRMAN WILSON: Any other questions? If not, I have a question or two.

Q. (By Chairman Wilson.) Mr. Pendleton, if a bond issue sufficient to cover all that part of the cost of the entire project, interceptor sewers and sewage treatment plant, were arranged for as a single issue, could it be arranged so that the bonds would be sold only as money is needed in order to avoid payment of interest on the entire amount?

A. I think they would have to sell the bonds at one time in one proceeding.

Q. Is that the Iowa law, that all the bonds must be sold at once?

A. I think that they have to sell the bonds--maybe I am--I am not absolutely sure on that. They could keep the proceeds and invest those if they wish.

Q. Well, you see, the point of my question is, could the entire issue be authorized but then the actual sales made only as money is needed; but you are not sure what the law is on that point?

A. I am not absolutely sure, no, sir.

Q. Now, you haven't mentioned the possibility of any special assessments on benefited property as a means of financing these interceptor sewers. Is that possible or is it contemplated?

A. It is possible, not very probable. On interceptor sewers it is kind of hard to determine where the benefits are.

Q. Or would it be possible to assess any part of the cost of the sewage treatment plant on benefited property?

A. I think possibly it could be. The Iowa law provides special assessments could be permitted in such a situation. It is a question of benefits.

Q. But you don't have the information as to the amount of the cost that could be financed on that basis?

A. Well, under Iowa law any special assessment you can only assess up to 25 percent of the value of the property, and we might have a lot of difficulty with special assessments on the project.

Q. Getting back--

A. Possibly one segment could be financed that way, but the whole project it wouldn't be feasible at all.

Q. Getting back to these revenue bonds, if you were to go ahead with the idea of just issuing enough revenue bonds to pay the cost of the sections of the interceptor sewer as constructed, would all the sewered property in the city be subject to rentals to underwrite those bonds?

A. Yes.

Q. That would not be apportioned to any particular part of the city that is served by the project constructed?

A. No.

Q. In other words, if you issue any revenue bonds at all-

A. Pledging the--

Q. --it obligates the revenue from all the sewered property in the city?

A. That is right.

Q. Is there no possibility of subdividing the city so that such bond issues could be allocated to different sections of the city actually served by the project?

A. Well, I suppose it could be subdivided into districts, as we do on an ordinary sewer, and assessed according to the benefits received by the party, but an interceptor sewer is generally for the benefit of the entire city or most of them are.

Q. But as far as--

A. We have the example down on the riverfront where it drains--will drain most of the city in the long run.

Q. As far as the financing of the sewer treatment plant which would serve the entire city is concerned, that would require obligating the revenue from all the sewered property in the city, I assume?

A. That is right.

CHAIRMAN WILSON: That is all.

MR. SAMSON: I have just one question, Mr. Pendleton.

Q. (By Mr. Samson.) Hasn't it been generally established that possibly the most reasonable and equitable method in which to take care of these costs in connection with treatment and interceptors and pollution problems is the so-called sewer use fee on the use of water where the residences pay a certain fee and other industry, like I just happened to be thinking of the packing industry, that uses more water pay a higher fee? I mean isn't that pretty well established as the fair, reasonable way to --

A. That is usually the way, yes.

Q. --handle the problem of financing?

A. Yes.

Q. And generally that is about the way you are --

A. That was our plan, as we went along on the project, such as we have, to issue revenue bonds as the occasion arose.

Q. And so the next thought that follows is that those persons, parties or individuals or companies that probably contribute the biggest load would pay the larger service fee as far as sewer use fee is concerned?

A. That is right, unless some method of contribution is worked out with them on the original project.

Q. Yes. I appreciate that. And there has been some discussion here in this community in connection with just that sort of a thing?

A. Yes.

Q. Hasn't there?

A. Yes, there has been.

Q. I am reminded of some testimony here where there was some thinking that the industry in the Floyd River area should contribute somewhere around a million dollars?

A. That is right.

MR. SAMSON: Toward the over-all picture. Yes. Thank you.

CHAIRMAN WILSON: Any other questions, gentlemen?

That is all, Mr. Pendleton.

(Witness excused.)

CHAIRMAN WILSON: I think we will take our 10-minute morning recess.

(RECESS)

CHAIRMAN WILSON: The hearing will be in order.

Proceed, gentlemen.

MR. DAVIS: Mr. Rugg, please.

A. E. RUGG

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DAVIS:

Q. Will you state your name, please?

A. A. E. Rugg.

Q. You were sworn in yesterday?

A. Yes.

Q. (By Chairman Wilson.) How do you spell that last name?

A. R-u-g-g.

Q. (By Mr. Davis.) What is your position with the City of Sioux City?

A. Director of Finance.

Q. And for how many years have you been Director of Finance?

MR. STEIN: Mr. Chairman, if counsel is seeking to qualify Mr. Rugg as an expert in municipal finance and specifically an expert in the financial matters pertaining to Sioux City, we will concede it.

MR. DAVIS: Thank you.

CHAIRMAN WILSON: That will be understood.

Q. (By Mr. Davis.) Mr. Rugg, you have been present in the courtroom during this morning's testimony. Can you here me now?

A. Yes.

Q. You have been present here and heard the testimony concerning the legality or illegality of certain methods of financing, is that correct?

A. Yes.

Q. Now, as far as your testimony is concerned I would like to start this way. Do you know what the legal limitation is upon the City of Sioux City for the issuance of general obligation bonds, that is what would be our permitted borrowing at this time?

A. The legal limit of indebtedness for the City of Sioux City at this time is $9,435,000 in general obligation bonds.

Q. And can you tell the Board what are our present outstanding obligations of this nature, or, rather, the total amount, but taking into account matters to which we are already committed in this calender year? Where are we now, will we be this year, with reference to this ceiling? Or if you would rather answer it and break it down, go ahead. In other words, just tell them how much we owe and are going to owe.

A. The present outstanding general obligation bonds total $2,822,000. We contemplate--

Q. (By Chairman Wilson.) What was that figure, two million?

A. Two million eight hundred twenty-two thousand dollars. We contemplate issuing during the current year, current calendar year 1959, $875,000 in general obligation bonds.

Q. (By Mr. Davis.) These bonds are paid off over a period of how many years?

A. They vary. Twenty years is the maximum.

Q. What is the average on previous issues, if you know?

A. I don't know what the average would be. Big issues have the 20-year, small issues have a shorter--a smaller issue has a shorter maturity in number of years.

Q. Now, with reference to the questions of revenue bonds, has the city adopted its budget for the year 1959?

A. Yes.

Q. And with particular reference to the matter of the cost of the portion of the interceptor sewer now under contract for construction this year, what amount have you carried in the budget for that construction?

A. Five hundred fifty thousand dollars.

Q. Now, Mr. Rugg, in our budget for this year which has been adopted, as I understand, how will that money be raised?

A. For this particular $550,000 it will be raised from the Sewer Rental Fund. May I make a corrected statement?

Q. Yes.

A. The budget is in process of being amended slightly upward, so that my statement that it was in its final form is not fully correct. It is fully correct as to what the Council has considered.

Q. Well, the improtance of that isn't apparent to me now, Mr. Rugg. But what I do want to establish is, are we committed as to how the money will be raised to pay for that contract; that is, in our planning how it will be taken care of?

A. Yes.

Q. All right. Now, from where will the money come?

A. Sewer Rental Fund.

Q. And you say Sewer Rental Fund. How much-well, that, of course, it-- When the man or the Contractor comes in to get his $550,000 where will the city get the money to pay him first, where will that come from?

A. Sale of bonds, revenue bonds.

Q. In what amount?

A. Five hundred fifty thousand dollars.

Q. Which will be paid off from sewer rental funds?

A. Right.

Q. Now, what has been the -- for example, last year, what was the income to the city, if you can call it income, or at least what were the receipts to the city from the sewer rental tax or fee?

A. Two hundred seventy-one thousand dollars.

Q. Do you know what it was the previous year?

A. The previous year it was $237,000.

Q. And will you happen to have the figures for the year before that?

A. I do not have those with me.

Q. Mr. Rugg, you heard the questions asked, and I assume the Board will ask them of you too, but you heard the questions asked of Mr. Pendleton concerning financing the entire cost of the sewage treatment plant from revenue bonds, you heard that testimony in question, is that correct?

A. Yes.

Q. For how many years have you had anything to do with the sale of revenue bonds here in Sioux City and in the State of Iowa?

A. Eighteen.

Q. Are you familiar with the question of the salability of bonds, and so forth?

A. I think so.

Q. We have sold a few in the past, haven't we?

A. Yes.

Q. Now, revenue bonds under our law may be retired in what period of years?

A. Not more than 20 annual installments.

Q. And do you agree with Mr. Pendleton's statement that they could not be sold in installments as the work comes due but must be sold all at once, is that correct?

A. Yes.

Q. Now, I will ask your opinion as to whether the City of Sioux City could find a buyer for $7,000,000 or from $5,000,000 to $7,000,000 worth of revenue bonds at one time?

A. No.

Q. These bonds, of course, can be retired only from the proceeds of this Sewer Rental Fund, is that correct?

A. Right.

Q. What is the going rate of interest on revenue bonds, if you know?

A. Between three and a half and four, maybe a little over. That would be qualified on checking on Dow Jones average, and so on, for the last few weeks, which I haven't done.

Q. Up to 4 percent?

A. Right.

Q. Incidentally, while I think of it, what is the usual rate of interest that we are able to sell our general GO bonds at?

A. At the present it is in the neighborhood of two and a half.

Q. There is one and a half percent spread actually there?

A. Yes.

Q. Now, have you made any computations as to the cost as far as interest of carrying revenue bonds if they were issued in one fell swoop as has been suggested?

A. Yes.

Q. And what would that result in?

A. In yesterday's testimony one of the statements was referred to as $7,200,000 cost to the city. If an issue was made of $7,200,000 payable in 20 annual installments, each annual installment would be $360,000. If the interest on that was only two and a half percent, instead of four as I mentioned, the interest on the first quarter would be $9,000, making a retirement of $269,000. And my consideration, what I am thinking of, is what am I going to use for money and I can't figure how $270,000 would pay $369,000. So my answer is no to that point.

Q. Well, I was going to ask you is it feasible for us to finance the project in that way? Is it feasible for us to finance the project in that way?

A. No.

Q. Even if we could sell the bonds?

A. Yes.

Q. I believe you might have misspoken, Mr. Rugg. I heard you say two sixty-nine and then three sixty-nine. What do your computations show that we would have to pay off per year?

A. Three sixty-nine is on the basis of seven million two hundred thousand dollars in twenty annual installments, three hundred sixty thousand dollars principal and nine thousand dollars interest or maybe it is ninety.

MR. JONES: Something wrong somewhere. Nine thousand dollars interest is not right.

A. Maybe it is ninety. Wait a minute. Correction. I am way wrong. The interest is a hundred eighty thousand dollars instead of nine. I was figuring interest on interest. It would be three hundred sixty thousand dollars plus a hundred eighty thousand dollars for interest.

Q. (By Mr. Davis.) Making a total that we would have to pay off of what each year from sewer rental funds?

A. Five hundred forty thousand dollars.

Q. Do you know how our present sewer rental rates are computed generally?

A. I missed it.

Q. Do you know how our present sewer rental rates are computed presently?

A. Yes.

Q. Would you explain that to the Board?

A. Sewer rental rate is one-half the minimum water bill.

Q. Now, Mr. Rugg, in connection with the maintenance of sewers, is it possible for the city to levy an ad valorem tax to take care of that?

A. Yes.

Q. Are you acquainted as to the limitations upon the particular fund which is used in connection with--strike that. That is the sanitation fund, isn't it?

A. Yes.

Q. What is the present limitation under Iowa law by mills?

A. Seven.

Q. How many mills are we presently levying?

A. Three point four ninety-four.

Q. About half of what we can?

A. Yes.

Q. However, that isn't the whole picture, is it?

A. Right.

Q. What is the over-all limitation upon our ad valorem levy under present Iowa law?

A. On functional funds 30 mills.

Q. So that the total of the various functional funds, the total levy, can not exceed 30 mills regardless of what the individual limitations are in the funds, is that correct?

A. Yes.

Q. What is the City of Sioux City levying at this time?

A. Twenty-seven point fifty-nine in functional funds.

Q. So that our present situation is that we are within one and four tenths mills of our ceiling?

A. Yes.

Q. So all other considerations aside for other funds which may or may not mean more money, right now the only raise that could be made in sanitation would be about one and a half mills or one point four, whatever I said, is that correct?

MR. JONES: 2.4.

CHAIRMAN WILSON: 2 point.

A. It would be 2 point.

Q. (By Mr. Davis.) Yes, the figure I just gave you.

A. Yes, provided there was no difference in the other functional funds.

Q. Can you forecast the situation concerning the other functional funds?

A. Yes and no.

Q. Well, to what extent can you and to what extent can't you?

A. In the present year's budget in which we have a millage of 27.79, Council in considering the budget for this year deleted $185,000 that they had proposed to expend which would have been raised by an ad valorem tax. That reduced the millage to 27.59. Had that been in it would have been almost 30.

Q. Yes. What does a mill produce in Woodbury County?

A. A hundred one thousand.

Q. I see.

A. Plus. A hundred one thousand-plus.

Q. But the original levy as proposed would have been how close to the 30 mill ceiling?

A. The original mill levy as proposed would have been, as I figure it, 29.41.

MR. DAVIS: I have no more questions.

CHAIRMAN WILSON: Counsel for the Government any questions?

MR. STEIN: Yes, we do have a few.

CROSS-EXAMINATION

BY MR. STEIN:

Q. Mr. Rugg, this mill levy is based on the property tax in the district tax structure?

A. Yes.

Q. Can you tell me, has there been an upward reappraisal or assessment of property for tax purposes in Sioux City, Iowa, within the past ten years?

A. As a whole, no.

Q. Well, can you say what the average reappraisal for tax purposes in major Iowa Cities is for the past ten years?

A. I don't know that.

Q. Well, would you agree with the statement that since 1949 the Sioux City's assessed valuations arose only 16 percent as compared with 50 percent or more for other large Iowa cities?

A. Yes.

Q. In other words, if the assessed valuation change had taken place in Iowa, in Sioux City, Iowa, as in other large Iowa cities, there may have been a little extra mill spread?

A. Yes.

Q. Would you agree that this would amount to 7.18 mills?

A. I don't know the figure.

Q. Well, is that approximately correct? How much do you think it would amount to?

A. I don't know.

Q. Are you aware that the City Manager said that this would amount to 7.18 mills?

A. Yes.

Q. How much money do you now have in your sewer revenue fund?

A. You said now?

Q. Yes.

A. I don't know.

Q. Approximately?

A. I would guess right now a hundred seventy-five to a hundred eighty thousand.

Q. A hundred eighty thousand. Would you say that the sewer revenue fund raised two hundred thirty-seven thousand in '57?

A. Yes.

Q. And two hundred seventy-one thousand in '58?

A. Yes.

Q. Well, with an income like that how long would it take to pay for the proposed interceptors?

A. I don't know.

Q. Well, if you applied all the funds in the sewer fund how long would it take?

A. I still don't know.

Q. Let's assume the proposed '59 interceptors referred to here amounting to $875,000, assuming the rate of return continued in the sewer revenue fund as you have indicated, being 50 percent of the minimum water bill.

A. Eight hundred seventy-five divided by two hundred seventy is three-plus.

Q. Three-plus. Now, if that is so, I ask your opinion whether you think it would be logical to issue a 20-year bond issue, if that might cast a cloud on your issuing of subsequent revenue bonds if you would have the funds to pay for for that in 3-plus years and you do have a considerable portion of those funds right in the fund right now?

A. I haven't got the real question. You have some remark in there, but I haven't got the point, just the question.

Q. The question is if you can pay for this out of the sewer revenue fund in three-plus years, in your opinion would it be logical to issue a twenty-year revenue bond issue for these interceptors? Would you recommend that, in your opinion?

A. For these particular interceptors?

Q. Yes.

A. No.

Q. All right. Now I just have one more question and that alludes to the remark you made about the rate of the fund going into the sewer revenue fund. As I recall, Mr. Rugg, you stated that this was based on 50 percent of the minimum water bill, is that correct?

A. Right.

Q. Is that the usual rate in this part of the country for sewer revenue funds?

A. I don't know.

Q. Well, I would like to call your attention to Government Exhibit No. 8, which is the preliminary report on sewage engineering facilities prepared by Buell and Winter and Howard Green and Company. This report on page 11 states that the sewer rental rates of 50 percent of the water bill, not 50 percent of the minimum bill, are common throughout the state for purposes of financing sewage treatment works. Now, with that in mind would you agree with this statement?

A. Now, what statement am I agreeing with?

Q. Well, let me read you this or you can read it yourself. This is from Government Exhibit 11, that is your own engineering preliminary report. "As a basis for a trial financing forecast, to formulate a tentative financing plan for consideration by the City Council, a sewer rental rate of 50 percent of the water bill has been assumed. Sewer rental rates of 50 percent are common throughout the state for purposes of financing sewage treatment facilities." Are sewer rental rates of 50 percent common throughout this state for financing sewer treatment facilities?

A. I am not authority to dispute or affirm his statement.

Q. All right. But in fact the sewer rental rates established by the city are set below those assumed here as a basis for computation?

A. That is as I understand it.

Q. Well, I withdraw that question if you don't understand it.

MR. EDELMEN: He said, "That is as I understand it."

MR. STEIN: Oh, I am sorry. I change it.

Q. (By Mr. Stein.) Now, there is just one more point. When you started to compute the cost of sewage treatment and related facilities you started with a project costing $7,200,000. As I read the engineering report and heard the testimony the other day, the start of that project would be $6,100,000 if we were to base that on costs allocable to industry and costs allocable to the city. In other words, the costs allocable to the city as recommended in Government Exhibit 8 and confirmed by the testimony of the engineer witness put on by the city indicated that this figure was correct. In other words, can we start with that $6,100,000?

A. I wouldn't be in a position to pass on that.

Q. Well, let's assume to start on that, starting with this, let's assume again that this engineering report is correct, that the estimates in it are 10 percent over the contracting costs. That would bring the cost to the City down to $5,500,000, would it not?

A. Ten percent off from what?

Q. $6,100,000. I am giving you approximate figures.

A. And take off 10 percent?

Q. Yes. And then if we assume--

A. $5,490,000. $6,100,000 less 10 percent is $610,000. That would leave $5,490,000.

Q. All right, that is correct as far as my computations go and I am not very good at those.

A. I wonder if I am.

Q. If we can assume again that while you said--Can we assume it would be feasible for the city, based on sewer rental charges amounting to 50 percent of the water bill, to raise a revenue bond amounting to $3,300,000? I might say the engineer report so indicates, your city engineer's report prepared in 1957.

A. Three million what?

Q. $3,300,000.

A. No.

Q. All right. Now, may I read you this statement from the engineering report, Government Exhibit No. 8, page 11. It says: "Based on four and a half percent" --and he is a little higher than you; he is more generous with Sioux City's money for interest --"Based on 4 1/2 percent interest rate for 20-year revenue bonds, and an average annual surplus of 35 percent in excess of principal and interest requirements, the $329,975"--and I assume by that he means the money available in the Sewage Rental Fund--" would amortize revenue bonds in the amount of approximately $3,300,000. This amount of bonds would then leave approximately $2,821,323 to be financed by general obligation and/or special assessment exclusive of that amount tentatively allocated to the industries." Do you think that this might be a feasible method of financing? Do you know anything in the law or--

A. That is splitting it between GO's and revenue.

Q. That is correct. That is precisely what I am getting at.

A. It might be done.

Q. Well, thank you. Now, one more question. Did you ever see an opinion that the city has gotten from bond counsel on the ability, the legal ability, to finance sewage treatment works by revenue bonds?

A. Legal opinion from whom?

Q. I didn't say legal opinion, I said an opinion from bond counsel on the ability of the city, the City of Sioux City, under present state law to finance sewage treatment works by revenue bonds?

A. Did I see? No.

MR. STEIN: You never have. Thank you, sir. That is all. No more questions.

REDIRECT EXAMINATION

BY MR. DAVIS:

Q. One more question, Mr. Rugg. With reference to the question asked on cross-examination concerning the use of sewer rental revenues for the payment of bonds, are all of those revenues available to use to retire bonds?

A. No.

Q. What percentage are used elsewise? Just give me the total.

A. In this year's plan I would estimate seventy-one thousand, exclusive of what was set up for the purchase of land, will be used out of the revenue received from sewer rental.

MR. DAVIS: That is all.

CHAIRMAN WILSON: Any more questions, Counsel?

MR. STEIN: No more questions.

CHAIRMAN WILSON: Members of the Board? Mr. Kurylo.

Q. (By Mr. Kurylo.) If I understand your testimony, you have indicated that while there might be some financial problems involved in the construction and operation of a sewage disposal plant and the sewers now under construction, laterals now under construction, such financial problems are not unsurmountable? By that I mean you are not faced with an impossible situation, is that correct? Let me restate my question.

A. I wonder.

Q. Sir?

A. I wonder.

Q. You have heard the testimony or you have answered questions on cross-examination which indicated to me that you saw that this sewage disposal plant and the sewer lines now being constructed could be undertaken within the financial ability of the city. That is my understanding of your testimony.

A. I think my answer was really yes and no to that. There are so many other factors that enter to my answer to the one question. There are so many other factors, sir, that enter into this thing and what I get into is what we are going to use for money on these things, so that I don't like to commit myself to an answer on that when I can't pin it down.

Q. I understand your situation, sir. You do not have the final authority. In some instances the authority to raise funds is vested in the people by an election, in other instances it is vested in your Board of Aldermen, as I understand it. And as indicated in earlier testimony this morning, your Board of Aldermen has the authority to increase the sewer rental fee without action of the electorate. As I understand it from previous testimony this morning, your Board of Aldermen has the authority without going back to the people to issue revenue bonds pledging the sewer rental fee. As I understand it from your testimony, although the financial situation is tight with respect to revenues from other sources there is a little elbow room. Am I stating a correct understanding?

A. I see no elbow room in revenue bonds and I question elbow room in general obligation bonds.

Q. Is your statement on "no elbow room" in revenue bonds based upon the present rate of the sewer rental fee?

A. Yes.

Q. I ask you, then, if from the financial viewpoint your Board of Aldermen could raise the fee and produce a substantial amount of the yield?

A. I don't know that it would produce. If it would produce, yes.

Q. Can you give me, sir, the total yield on your water bill for last year?

A. The money received from water rates 1958?

Q. 1958?

A. $777,000.

Q. $777,000. And what was it in 1957, sir?

A. $739,000.

Q. $739,000. Now, one-half of $777,000 is $388,000 round figures, is that correct?

A. That is right.

Q. As I see it, your sewer rental fee based upon one-half of the minimum water bill provided, according to your statements, $271,000---

A. Yes.

Q. --for 1958?

A. Yes.

Q. Simply by an act of your Board of Aldermen to provide for a sewer rental fee based upon one-half of the water bill according to the figures you cited to me would it not produce $388,500?

A. Yes.

Q. Would that not then provide around $117,500 over and above what is now going into the sewer fund?

A. On paper, yes.

Q. Would you mind explaining your answer?

A. The resistance encountered in the collecting of a sewer water rental on the basis of one-half the water involves numerous factors that are resistant, particularly where the industries and others indicate and claim the water does not pass into the sewers. And that raises question after question as to how to adjust it all the way through. It does not become--the sewers do not take it off.

Q. Would you mind explaining where in your opinion, if you have one, that water eventually goes?

A. A lot of it goes on the lawns and places like that.

Q. I see. You are separating that from the--

A. They pay water on that, water rent on that, anything that goes through the meter.

Q. That is a question of practical application but not one of law, is it not?

A. Yes.

Q. The City Council could do what I understand other City Councils in the State of Iowa are doing, could it not?

A. They can do whatever the law provides.

Q. The City Council could also within the framework of legal limitations provide for payment of a portion of the cost of a sewage disposal plant by general obligation bonds, is that right?

A. Yes.

Q. The City Council could also provide to pay for a portion of the cost of a sewage treatment plant and other facilities by special assessments, could it not?

A. I think so.

MR. KURYLO: I have no further questions.

MR. DAVIS: Mr. Chairman, in connection with this testimony may I ask my questions now?

CHAIRMAN WILSON: Yes, go ahead.

MR. DAVIS: To explain it.

REDIRECT EXAMINATION (Cont'd.)

BY MR. DAVIS:

Q. For the first time, Mr. Rugg, reference has been made to practical applications of the rules of law that we have been talking about. Now, in making your answers concerning this raising of the water rates you have confined yourself to legality, is that correct? You make no representations as to the ability of the people of Sioux City to pay increased bills?

A. Right.

Q. I will ask you whether or not--the next question was, you were asked whether three members of the Board of Aldermen--it is City Council, incidentally, but three members--or, rather, if the Board of Aldermen, City Council, had the right to raise the water bill and you said that they do and to raise the sewer rental rates, that is correct, isn't it?

A. Right.

Q. I will ask you whether or not in the election of '57 which followed the raising of the rates, specifically to raise the sewer rental ordinance, that was an issue in the election and if the three members who participated in that raise were promptly thrown out of office?

A. Yes.

Q. So when you say they can do it, you are not insuring that their political life will continue?

A. I said to begin with, all I am concerned with is what I am going to use for money. You can say that you can get it this way, but if I can't get it--you can still say I can get it, but if I can't get it I haven't got it.

CHAIRMAN WILSON: Any other questions? Mr. Poole.

Q. (By Mr. Poole.) I would like to know what this minimum water bill is that we have been talking about?

A. $17 a year.

Q. $17 a year for how much? Are you metered?

A. It is metered. I haven't got the figure here.

Q. Well, anyway, it is $17. a year, which is a little less than $1.50 a month?

A. That is residential.

Q. And then this statement of yours that you did not believe that Sioux City could sell from five to seven million dollars worth of revenue bonds was presumably predicated on the assumption that this minimum water user wouldn't pay more than about 75 cents a month for sewer service charge, is that correct?

A. That is one of the factors, yes.

Q. Are you aware of the fact that throughout the country there are many, many minimum water users paying as much as $2. a month for sewer service charge?

A. Yes. I understand in Dallas, Texas, you can buy water by the quart, or could at some time.

Q. No, I am talking about the sewage treatment charge. But that is all I wanted is your statement you couldn't sell these bonds was predicated on the assumption the rate would have to be one-half of the minimum water bill?

A. That was one of the assumptions that I had in mind.

MR. POOLE: I think I will agree with you for 75 cents a month.

CHAIRMAN WILSON: Other questions?

Mr. Metzler.

Q. (By Mr. Metzler.) I want to follow up this line of questioning by Mr. Poole a little farther, if I might, Mr. Rugg. You indicated in your testimony that you felt if the service charges were increased that folks would refuse to pay. Did I understand this?

A. Right.

Q. Would you tell me how many defaults you have had and how many times you have had to shut off the water in order to enforce payment of the sewer service charge since it was adopted?

A. Because of the way we handle I can't give you an answer on that. I can answer your question, but it will take in another item.

Q. Well, give us some order of magnitude. Have you had a dozen?

A. We bill water and sewer rental in one billing. If that billing isn't paid and it becomes delinquent, both water and sewer will turn the water off. Your question was just to sewer.

Q. My question was, since the sewer service charge has been placed into effect how many customers have refused to pay because of the sewer --have refused to pay their combined water-sewer bill because of the sewer service charge?

A. I wouldn't have that figure.

Q. Has it been a dozen?

A. Yes. Yes.

Q. Has it been 50?

A. I think so. They eventually paid it, but they refused to pay it. We shut the--

Q. Did they refuse to pay so that the water department actually sent its crew out and turned off the water?

A. Yes.

Q. In maybe as many as 50 cases?

A. In how long a time?

Q. Since the charge was placed in use?

A. Oh, yes.

MR. METZLER: I think that answers the question.

CHAIRMAN WILSON: Any more questions, gentlemen?

Q. (By Chairman Wilson.) Mr. Rugg, I just have a question or two here. Going back to this matter of the issuance of revenue bonds to pay the cost of the interceptor sewer projects piecemeal, that is one job at a time, Mr. Stein pointed out that the jobs that are now contemplated would be paid for out of the Sewer Rental Funds in a short period of years. It wouldn't require a 20-year bond to pay the cost of those projects if they were taken piecemeal, would it?

A. That is right, if we could do it that way.

Q. Now, I am not sure I understood your answer to the question as to the amount that was required out of the annual receipts from sewer rental for purposes other than bonds. Would you repeat your answer to that? What is the net amount available out of the sewer rental annually for retirement of bonds if issued, in round figures?

A. Well, last year, sir, if this was the only capital improvement considered and operating expense on the other side, no other capital improvement, it would be in the neighborhood of $200,000.

Q. Yes. Now, would it be feasible from the financial market standpoint to float a short term revenue bond issue to be retired within a few years, whatever it would take, at that rate of available money to pay for the cost of these interceptor projects? I believe it is in testimony that the cost of the projects now comtemplated is about $550,000, isn't that right?

A. Yes, that is to be financed by bonds, revenue bonds.

Q. Well, would it be feasible to float a short-term bond issue to take care of that cost?

A. What do you mean short term?

Q. Well, within the period of years within which you would have money from the Sewer Rental Fund to pay off that amount of obligation. It would be a relatively short term of years when you would accumulate that amount of money with $200,000 available, wouldn't it?

A. Right.

Q. Three or four years, anyway less than five years?

A. Right.

Q. And as I understand it, the Iowa law permits you to issue additional revenue bonds payable after the payment of any amount of bonds already issued, isn't that correct?

A. That is a legal question, but I understand it is correct.

Q. Well, I understood that that had been admitted here all around, that as long as--

A. I don't want them to say that I am practicing law, that is what I am trying to avoid.

Q. Just assume, then, that that is correct for the purposes of my question.

A. Right.

Q. That if the additional bonds are made payable after the maturity of the existing bonds, that then they would be legal?

A. That is as I understand it.

Q. Now, from your experience as a finance man do you think that such bonds would be marketable?

A. The short term?

Q. Yes. Well, in the first place, do you think these short-term bonds would be marketable?

A. They had better be, yes.

Q. Now, you have a maximum bond limit of up to 20 years, haven't you?

A. Twenty annual payments.

Q. Well, that makes them that they must be retired within 20 years?

A. Yes.

Q. Then wouldn't it be feasible, in addition to the bonds that you might issue for the first projects undertaken amounting to $550,000 that would be retired within three or four years, at any rate less than five years, for the further steps in the project as undertaken to issue and market additional bonds as money is needed maturing at any time within the limit of the 20 annual installments?

A. It might be. There are a number of factors that enter into that and that is the change in administration. No administration can commit another administration that will be coming in at the same time, be it the same administration re-elected or not.

Q. Well, what you mean is no administration could promise in advance to make a future bond issue?

A. Right.

Q. But once the bond issue is made, no future administration could repudiate it?

A. Right.

Q. Now, going to this question of the general revenue bonds-- first let me ask you, is there any limit on the tax levies that may be made for the retirement of general obligation bonds?

A. No.

Q. The only limit on them is the limit on the total bonded indebtedness?

A. Yes.

Q. And I think you stated that out of a total bonded indebtedness of $9,435,000 you already have obligated $2,822,000?

A. Right.

Q. How soon will that $2,822,000 be paid off?

A. 1971. Wait a minute. Excuse me.

Q. Is it all in one issue?

A. Oh, no.

Q. Then it is in different issues that will be paid off from time to time?

A. Yes, sir.

Q. And how soon will the last of it be paid off?

A. 1971.

Q. Have you been here throughout the hearing, Mr. Rugg?

A. No, sir.

Q. Well, did you hear the previous testimony about the action taken by the previous City Council of Sioux City determining to go ahead with the sewage treatment project?

A. I don't--

Q. Well, at any rate, whether you heard the testimony or not, are you familiar with the action that was taken by the previous City Council regarding the undertaking of the sewage treatment porjects?

A. Yes.

Q. You were Finance Director for the City at that time?

A. Yes.

Q. And was it then considered and determined that the financing of the project as so voted for by the City Council was feasible?

A. Yes.

CHAIRMAN WILSON: That is all.

Q. (By Mr. Davis.) By whom, Mr. Rugg?

A. It was considered feasible to--if the costs could be held down within the limits that they figured could possibly be handled by revenue bonds.

CHAIRMAN WILSON: Any other questions, gentlemen?

MR. SAMSON: Yes.

Q. (By Mr. Samson.) And what cost was that?

A. I don't recall, sir. It wasn't too heavy.

Q. Was that the cost that is set out in this Government Exhibit 8 that has been referred to?

A. I am not sure, sir, because there was a discussion that we could probably go through with not a complete installation of that, of all these sewer--I am not familiar with all the requirements to put in a sewage plant and all it takes in. But if they could go and accomplish things to a certain extent, which would be far less than what was recommended in here, to that extent, yes, that they went through and that is what I was referring to in answer to the Chairman of the Board there or your presiding officer when I said yes.

Q. Well, now, based--approximately what is the rate of interest on revenue bonds as would be involved in the Sioux City situation? Would it be about a two and a half or three percent bond?

A. I wouldn't guess on the present market.

Q. Well, your best, do you have a judgment at all on it?

A. Revenue bonds are right now bringing, as I understand it, close to four.

Q. Four percent. I see. Do you anticipate an increase in the sewer use fee income in 1959 in the total income based on your percent schedule?

A. No.

Q. Are all incomes from the sewer rental fee placed in one fund?

A. Yes.

Q. And that is the Sewer Rental Fund?

A. Yes.

Q. And it is all used in connection with sewer work, is that right?

A. The sewer work, that kind of sewer work that it may be used for.

Q. Any of the funds used for water works development?

A. No.

MR. SAMSON: I believe that is all. Thank you.

CHAIRMAN WILSON: Any other questions?

MR. KURYLO: Yes.

CHAIRMAN WILSON: Do you have a question, Mr. Kurylo?

MR. KURYLO: Yes, I have a few other questions.

Q. (By Mr. Kurylo) As I understood you to testify earlier, the sewer rental rate now is one-half of the minimum water bill?

A. Yes.

Q. I understood you to testify also that the minimum water bill is $17 a year?

A. Yes.

Q. Is it correct, then, that under the present--

CHAIRMAN WILSON: Just a minute. I saw Mr. Jones as well as Mr.--it was understood that Mr. Poole was to be permitted to excuse himself at any time on account of his indisposition, but I see that Mr. Jones has left so perhaps we had better wait a minute until he gets back.

Mr. Secretary, is Mr. Jones going to return shortly? We will wait for him.

Very well. Resume the question.

Q. (By Mr. Kurylo.) This is 71 cents a month, is it not, $8.50 a year?

MR. KURYLO: Would you read the previous assumptions I made?

(Record read.)

Q. (By Mr. Kurylo.) Is it correct, then, that under the present sewer rental fee it amounts to 71 cents a month?

A. Seventy and five-sixths.

Q. Then if the rental fee were increased by 50 percent, it would be only about $1.06 a month?

A. Yes.

Q. And if it were doubled it would be only $1.42 a month?

A. Yes.

Q. In other words, while from the viewpoint of the whole city we are talking in terms of several million dollars of capital investment which would need to be financed over a period of 20 years or so, a substantial portion of the annual cost of financing that long-range investment would involve, assuming the present sewage fee is doubled, only 71 cents of each family tied into the sewer lines, is that correct?

A. As I understand your question, it would involve just capital improvements. It will involve capital improvements and attendant operating expense, yes.

Q. If the sewer fee were doubled it would involve an increase of only 71 cents per family tied into the sewer line?

A. Yes.

MR. KURYLO: I have no further questions.

CHAIRMAN WILSON: Any other questions?

Does counsel have any more questions?

MR. EDELMAN: The Government has no more questions.

CHAIRMAN WILSON: That is all.

(Witness excused.)

MR. DAVIS: The city calls Mr. Bodine. He hasn't been sworn.

CHAIRMAN WILSON: Mr. Secretary, will you get the clerk.

We will take a five-minute recess.

(RECESS)

CORNELIUS BODINE, JR.,

called as a witness on behalf of the City of Sioux City, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. DAVIS:

Q. Will you state your full name, please?

A. Cornelius Bodine, Jr.

Q. (By Chairman Wilson.) How do you spell that last name?

A Bodine, B-o-d-i-n-e.

Q. What were the initials?

A. None in the center, sir. Junior. No middle name. Cornelius.

CHAIRMAN WILSON: Oh.

Q. (By Mr. Davis.) Mr. Bodine, what position do you presently occupy with the city and how long have you had it?

A. City Manager in Sioux City since January 8, 1958.

Q. How many years experience have you had as a City Manager?

A. Eleven.

Q. What was your formal education? From where did you graduate with what degrees?

A. I took a B.A. degree at Amherst College and did all my graduate training for a Master's degree at the University of Pennsylvania.

Q. When did you finish your professional education?

A. 1948, '49, in there.

Q. And since that time what type of work have you done, what has been your experience?

A. Since then I have just done nothing but City Managing.

Q. Since coming to Sioux City you, of course, devoted considerable time and effort to a study of the city's problems, its possibilities, and so forth, as well as the run of the mill administration of it?

A. I have made an effort to do so, counsel.

Q. And a particular effort, is that correct?

A. Yes, a rather steady effort.

Q. Mr. Bodine, based on your experience and training and your studies that you have made, what do you believe to be the basic indices in connection with economic capability for any city or Sioux City in particular, of course, in connection with any project? What are the basic indices in your opinion?

A. Well, sir, I would first like to pin down what is meant by economic feasibility, if I may.

Q. Yes. Go ahead.

A. I have tried to put some thought on this question. The Federal statute says, "Giving due consideration to practicability and to the physical and economic feasibility" of doing this job.

MR. EDELMAN: Mr. Chairman, may I ask that the witness read the complete sentence in which those words appear?

THE WITNESS: Yes.

MR. EDELMAN: Please.

Q. (By Mr. Davis.) Go ahead.

A. "The court, giving due consideration to the practicability and to the physical and economic feasibility of securing abatement of any pollution proved, shall have jurisdiction to enter such judgment and orders enforcing such judgment as to the public interest and the equities of the case as the case may require."

MR. STEIN: Pardon me, Mr. Bodine, did you say court or board?

THE WITNESS: I said court.

MR. STEIN: Thank you.

A. I assume that the question should be determined as to what this means and I must say I can't relate indices until I get some idea what is meant. But I would like to try to do so.

Q. (By Mr. Davis.) All right.

A. First of all, it seems to me that practicability and economic feasibility relate to questions, first, of time and, second, of place. And when you talk about economic feasibility you are talking about financial capacity, you are talking about who is going to afford that financial capacity, where is it going to come from. This is not an engineering matter and it is not a legal matter. It has been alarming to me in this hearing that we haven't had some expert opinion on this question of economic feasibility. I am not an economist myself, but I feel that someone should give some thought to what the statute says in this connection and I think an economist would be a proper witness in this hearing. It seems to me almost a--not intentional, but an important omission not to consider the question of economics. It is on this point I would like to dwell.

In almost all city undertakings it is customary to consider economic feasibility, but there is no formula for all kinds of projects. We have heard in this hearing reference made to cost benefit ratio, which the Corps of Engineers uses in determining the economic feasibility of the Floyd flood control project. When they consider such a formula, they do not consider the particular matter of jurisdiction, the economic feasibility of Sioux City or of the State Highway Department or of the Corps itself. They consider the whole cost ingredient and the total benefit ingredient aside from questions of jurisdiction. That is one way of doing it.

You have concepts of economic feasibility when you float any bond issue, any revenue bond issue. You generally have a formula on that. Every bond issue, revenue bond issue, must cover, that is the income expected must cover, by at least one and a quarter to two and a half times the expected demand in payment of the bonds. You don't figure it just precisely. You have got to have at least one and three-quarters to two and a half to have economic feasibility, whether it is a bridge project, a sewage treatment plant, a water plant or anything else. This is another concept of economic feasibility.

Another concept which is quite universal in this state, in fact it is in the law, is that you cannot assess private property more than 25 percent of its value. This is a notion of economic feasibility. It is not feasible, in the opinion of the law, to assess more than 25 percent. Otherwise the benefit will not be great enough or the injury will be too great to make it a worthwhile deal.

I am wondering what thought has been given to questions of economic feasibility with respect to a sewage treatment plant in Sioux City. This to me is the most important part of the entire project. We are not building a sewage treatment plant in Tibet or in Canada or in South American, we are building it here. And the factors of time and place are uppermost, are vital.

And so we could take the Corps of Engineers approach and figure the cost benefit ratio. And I do believe it would be hard to assign cost values to such intangibles as the Federal representative referred to the other day. Ordinarily the law does not recognize esthetics. .We are not allowed to zone for esthetics, relating to appearances and relating to odor and relating to taste. We to some extent aim to achieve those objectives. This is something the poeple have to want and most people want them. It is a question, however, of how much they want them and when they want them and it is up to them to choose. But the law, as a rule, does not permit zoning or controls for esthetic purposes alone. At least, I don't know any law that does.

But as to the question of narrowing this question of economic feasibility without considerations of jurisdiction, we come to the question of who is going to pay in this jurisdiction and how much in this jurisdiction, regardless of how much cost benefit ratio there may be to drinkers of water in Omaha. Now, if we are talking about economic feasibility in terms of Sioux Citians, and this I think we must consider, I think the law intends it to be considered, we have to look about the economic feasibility of the people in Sioux City and I haven't heard any reference made to this subject.

One other comment. How are we going to measure whether seven million dollars is economically feasible? How are we going to consider whether this is the only thing? Now, if we would build a sewage treatment plant and have nobody here to use it, this wouldn't be economically feasible, obviously. It wouldn't be economically feasible if you had at the same time other major considerations, such as a river project or a water project or other things which are considered equally vital to the people here. So unless the broad picture and all the ingredients on the scene are weighed one by one and together relative to the history of the town, the people here that are going to be subjected to this cost, you don't have any useful criteria of economic feasibility, it seems to me.

Now, Sioux City has been seriously afflicted economically. I haven't heard this mentioned in five days, but this is true. And any economist can prove it and any one of you can prove it. Sioux City is an extreme case among Iowa cities in many ways. It is an extreme case in the midwest for cities of its size. It is improving considerably at the present time, but the condition of people, of families, the psychology of the public, the politics of the region are not determined by what happened last year. If our employment is as good as it was last year or maybe a little better, this is strictly incidental. One has to consider the long trend.

Now, Sioux City is getting better and I would like to say that the city government is making a major effort in direction of trying to improve the economy of this area. Nobody is sitting on their hands around here. You cannot accuse us of that. You will say so, perhaps, in terms of sewage, if you are only looking at sewage. But, gentlemen, here is a community which is trying to lift itself up from a serious blight which it has experienced for 25 years and you must not overlook this point.

The city government is not the only agency in this city which has made an all-out effort to bring lightened welfare, improve the condition of this community. The Chamber of Commerce has also done so. They have made an economic study which was presented less than a year ago to the City Council. They employed for $15,000 the Midwest Research Institute. I have a copy of their report here. It covers the economy of Sioux City. The Economic Potential of Sioux City is its title. This is the most important exhibit, if it were to be made an exhibit, in this entire hearing. The engineering questions, the legal questions, are beside the point if we do not consider the reason, the capacity of the community. They are not beside the point in Tibet, but they are beside the point here.

Also the city has made a concerted effort itself to measure its capacities, its welfare and its direction. We have here a study made entitled "City and Community Measurement", produced by the City of Sioux City. It was published in 1958. It was prepared in my office. It consists of 64 exhibits, using all the authorities that we know of to measure where we stand in this state relative to our past, relative to other cities.

Q. Mr. Bodine, with this preface can we go through the individual items, the basic indices, if I may use that, which you have taken into account of which you made a study, I believe, well, for example starting with our population in Sioux City, its trends?

A. I have seven indices I would like to refer to.

Q. All right, what is the first?

A. I could name them. Population, employment, added value by manufacture, wage levels, effective buying income, persons on relief, assessed valuation, and a minor index after that.

Q. What is the first one?

A. Population.

Q. What is the situation with reference to that?

A. I don't want to be glib in trying to make comparisons, but there are four counties in the State of Iowa which are very comparable to the County of Woodbury. They have about 100,000 population and they have major metropolitan areas in them almost identical to Sioux City in population. These are Polk, Linn, Woodbury, and--I beg your pardon--these are Linn, Woodbury, Scott, and Black Hawk Counties. The variation between them is not 4,000 people in total population.

MR. EDELMAN: Mr. Chairman, may I ask the witness to identify the document he is reading from and inquire of counsel whether he intends to put that exhibit into evidence?

MR. DAVIS: I don't intend to and I don't know the name of the document.

Q. (By Mr. Davis.) What is it, Con?

A. This is an excerpt from the Federal census.

MR. DAVIS: All right.

MR. STEIN: What was the document you read from?

MR. EDELMAN: That is a part of a book, isn't it, Mr. Bodine? What is the title of it?

A. It is a book of excerpts from authorities of various kinds, in each case--

MR. EDELMAN: I have no objection, I am not going to object to its competency. I would like to know who prepared it.

A. This is the "City and Community Measurement" booklet I referred to which was prepared in my office.

MR. EDELMAN: And the date of the census from which this excerpt was allegedly made?

A. The 1950 Federal census.

MR. EDELMAN: 1950 Federal census. Thank you.

A. Considering these four counties we have an index which is, I think, worthy of notice. The population increase between 1930 and 1950, percentagewise: Black Hawk County, which contains Waterloo, 45 percent increase; Scott County, containing Davenport, 30 percent increase; Linn County, containing Cedar Rapids, 26 percent increase; Woodbury County, containing Sioux City, 2 percent increase; in a 20-year period.

One other item. Let us take just Sioux City alone since 1930.

Q. (By Mr. Samson.) What are you referring to now, Mr. Bodine?

A. This is also a part of the Federal census, but the excerpt is in the Midwest Research Institute report entitled "The Economic Potential of Sioux City."

MR. EDELMAN: Mr. Chairman, we will not object to the competency of this exhibit under the best evidence rule or anything. We assume that these are accurate. We would like the record to show, however, that we do not accept them as conclusive on that point. That is all.

CHAIRMAN WILSON: Well, they may be received subject to that understanding, and your right to object to any particular item.

Q. (By Mr. Davis.) Go ahead now.

CHAIRMAN WILSON: Go ahead, Mr. Bodine.

A. I simply refer to this to show that this 20-year trend is not just something that happened 15 years ago. From 1930 to 1940 the population went up 4 percent in the 10-year period on that basis, '40 to '50 2 percent. In other words, together it was a total of 2, but in both decades there was a very small increase.

MR. STEIN: Mr. Bodine, do you have a copy of that we could follow? It might be easier and move faster if we could read along with you.

MR. DAVIS: I don't believe, counsel, and he doesn't intend to quote--

A. I don't, and I don't intend to use it very much.

MR. EDELMAN: May I ask that you repeat the title of the document you have just read from and the figures you have just quoted?

A. This is a report entitled "The Economic Potential of Sioux City, Iowa."

MR. EDELMAN: Prepared by whom?

A. Prepared by the Midwest Research Institute of Kansas City, Missouri. It is a two-volume work dated May 22, 1958.

MR. EDELMAN: And may I ask you to repeat the data you gave prior to my interruption?

A. Let's see here.

Q. (By Mr. Davis.) You were discussing the fact of population. Had you completed that, Mr. Bodine?

A. Not quite.

Q. All right.

A. I will just give you what it says here. 1940 population 82,364, up 4 percent from 1930. 1950 population 83,991, up 2 percent from 1940.

MR. EDELMAN: And the chart that you have apparently read from is stated in the volume that you are quoting from to be a copy of the Federal census or an extract from it or computed from it? I don't know which it is.

A. "Source U. S. Department of Commerce, Bureau of Census, U.S. Census of the the Population 1950, Volume 1," is what it says.

MR. EDELMAN: In other words, that just says "source". I don't know whether that is an accurate copy or it is an adjusted index, but I think we will take it for what it is worth under the circumstances.

A. I don't either. I don't want to draw this out, but I think this is rather an important quotation from this same report on page 32: "The Sioux City labor market exhibits the characteristics typical of a labor surplus area."

MR. EDELMAN: May I ask that you read a little more slowly, because we don't have it before us and we want to comprehend thoroughly what you say or read.

A. Yes, sir. "During the past several years, for example, requests for workers in almost all job categories have been answered by several times the number of applicants needed. The Employment Security office reports that voluntary quits have declined sharply during the past several years in all types of employment. In addition there is evidence that out-migration of potential workers has been increasing as the result of the prolonged shortage of job opportunities. The extent to which out-migration has affected the supply of labor in Sioux City cannot be measured precisely. It is certain, however, that many workers have been moving away to Omaha, Cedar Rapids, and other cities in the area where employment opportunities are greater, wages higher, and where skills may be utilized more fully."

Just one other comment on population.

MR. STEIN: Mr. Bodine, was that a quote from a particular source?

MR. EDELMAN: He identified the source, Mr. Stein.

May I ask you, Mr. Bodine, to please specify the period that this general resume of events purports to cover?

A. The date on this report is May 22, 1938.

MR. EDELMAN: 1958, I think you mean.

A. '58, yes, excuse me, '58.

MR. EDELMAN: This narrative summary that you read us of out-migration, voluntary quits, and the number of people who applied for jobs, I don't recall that the quotation indicated a specific period of time to which this description intended to apply. Is it intended to be applicable to the date of the report, May 22, 1958, that day or a period before it?

A. Maybe I had better read it again.

MR. EDELMAN: I don't think you have to read it in the record again.

A. All right. "The Sioux City labor market"--

MR. EDELMAN: I said I do not think you have to read it in the record again.

A. Well, I do not think I have to either. But the present tense is used. "The Sioux City labor market exhibits"--present tense--"during the past several years"--

MR. EDELMAN: O.K. That is the point I want. Thank you.

A. O.K. This is quoted from page 9 of Volume II of the same report. Quote: "It is estimated that more than 20,000 people left Sioux City during the period of 1940 to 1950. This population loss was due primarily to the failure of local job opportunities to expand sufficiently to support a larger population."

MR. STEIN: Mr. Bodine, a point of clarification. Was that a net loss or 20,000 people left? How many people came in?

A. It is the net figure.

MR. STEIN: Thank you.

A. With respect to employment, the second point. It is hard to know the trend of the economy in any location. The best, as I say, we can do is to compare it with our own history or to compare it with other places. These figures by themselves I don't pretend are wholly conclusive. I think they are indicative and that is why I feel that one has to add numerous points. So I am not trying to -- I don't want you to think I am saying something I am not.

But comparing these five counties, I will include Dubuque in this category, we have the number of manufacturing employees. Sioux City is larger in population than any one of these cities in these counties, and the cities in the counties make up most of the population in the counties. For instance, Cedar Rapids had 18,457 manufacturing employees in 1954, based on the Iowa Industrial Facts published by the Iowa Development Commission in the 1954 census of manufacturers. Linn County 18,000--I will give it in round numbers--Black Hawk County 16,000, Scott County 12,000, Dubuque 10,000, Woodbury County 9,000.

I give you now the increase from the same report of manufacturing employees from 1939 to 1954. This is the increase, gives the trend of how it is growing. Linn County 11,000--again in round numbers, I might say--Linn County 11,000 increase, Black Hawk County 6,000 increase, Scott 6,000, Dubuque 4,000, Woodbury 3,000.

MR. EDELMAN: Mr. Chairman, may I inquire if the witness is still reading from Volume II of the report entitled "Economic Potential of Sioux City" referred to earlier?

A. No, sir. I am referring-- This piece of paper is contained in this yellow book. I gave you the source, however, of the--

Q. (By Mr. Davis.) Well, that was put out by you in your office?

A. This is copied off of a thing entitled "Iowa Industrial Facts".

Q. Yes. But I mean this was worked up, that entire booklet that you are refreshing your memory from, in your office?

A. That is correct.

MR. EDELMAN: I am not questioning it. I am just trying to keep track of the documents that the witness refers to during the course of his testimony and I know it is not intentional, but may I request that the witness try to identify the documents he reads from, identify the source of the excerpts that are quoted and the documents that he reads from.

A. Yes, sir.

MR. EDELMAN: Thank you.

A. I thought the source would be more important, but I will do them both.

Q. (By Mr. Davis.) I am wondering, Mr. Bodine, if you could go through these other factors that you believe are important here, give your conclusions concerning them without going into quotations? Go through them that way. Does that sound feasible to you?

A. Sir, when you are trying to measure something, when you are trying to determine economic feasibility or trend or anything, you have got to measure it if you are going to be accurate.

Q. Right.

A. You can't just say things are getting better or getting worse. It has got to be precise and I just can't memorize these figures.

Q. I see. Well, go ahead refreshing your recollection. You were talking about employment.

A. Let us take total employment in the City of Sioux City from 1950 to 1957, including manufacturing and non-manufacturing. I am quoting now from just a little study we did in our office. We are getting the figures, however, from the Iowa Employment Security Commission.

MR. STEIN: Mr. Bodine, for purposes of clarification again, do I understand that of the seven factors you are taking up you are just on the second one now, employment?

A. Yes, sir.

MR. STEIN: O.K. Thank you.

A. There is no more important factor in this whole thing, in my opinion, than this subject.

The population in Woodbury County--I mean the employment in Woodbury County, both manufacturing and non-manufacturing, in 1950 was 34,465. I have it for the years '53, '54, '56 and '57. There are minor changes, less than a thousand change at any time, but in August of 1957 the figure is still 34,990. There is no increase that you would expect to be to maintain a healthy economic situation. Economics is dependent mostly on where people make their money.

The third item is value added by manufacture. Again I refer now back to this yellow book entitled "City and Community Measurement", comparing it with five counties in the State of Iowa. Value added by manufacture in Linn County $150,000,000; Black Hawk $110,000,000; Scott $105,000,000; Dubuque $73,000,000; Woodbury, where we are, $46,000,000. This has a basic or is a basic index of the quality of the job. You can have a certain number, but there is a question of the quality.

Which leads me to the fourth point, namely wage levels. I would just like to sum this point up of wage levels by saying that the wage levels for comparable positions, wage rates for comparable positions, in Sioux City are uniformly lower here than they are in other metropolitan areas in Iowa and in the midwest. If you want me to read the statistics I will try to do it.

Q. (By Mr. Davis.) That is fine.

A. With regard to point No. 5. This is effective buying income. We are trying to surround this entire question of capacity to pay. There are three indices on effective buying income. I can go through them rapidly, sir. I am now quoting from the "City and Community Measurement" book, and this is an excerpt from Sales Management magazine of May 10, 1958. We will consider again these four counties in Iowa which have a great deal of comparability to them. First let us take the per capita income. We have Cedar Rapids, 1,904; Davenport, 1,860; Waterloo, 1,875; Sioux City 1,756. We have information on per household income in order of size. Waterloo, 6,051; Davenport, 6,005; Cedar Rapids, 5,944; Sioux City, 5,621. There is another index, the income per consumer purchasing unit, which is a statistical term used by economists nationally.

MR. EDELMAN: May I interrupt? I hate to interrupt you, but I am a little confused on the source of the figures you just quoted. Were those Department of Commerce figures? What was the source?

A. This is derived or directly copied from Sales Management magazine of May 10, 1958.

MR. EDELMAN: That is a private publication, is it not?

A. Yes, they used--

MR. EDELMAN: It is not a Government publication? That is the point I am making.

A. These are compiled from the best sources one can get, that is right.

MR. EDELMAN: By Sales Management?

A. I don't know where they pick it up from.

MR. EDELMAN: All right, that is all.

A. But I am sure the Federal Government was the main source.

MR. EDELMAN: All right, thank you.

A. And the date is 1957. It is not 1950.

MR. EDELMAN: The date of the magazine?

A. The as-of date of the material printed by the Sales Management magazine in its issue of May 10, 1958.

MR. EDELMAN: Thank you.

A. Consumer spending units. This is somewhat different from household units. It is an economist's concept. Waterloo, 5,178; Davenport, 5,106--

MR. STEIN: Mr. Bodine, does this come from the same source?

A. Yes, sir.

MR. STEIN: All right.

A. Waterloo, 5,040; Sioux City, 4,899. In all these matters we must remember that Sioux City is larger than any of these cities, but our economic base is relatively--is absolutely poorer and relatively poorer. In any index I have been able to discover the same picture has been revealed.

Getting to point No.--

Q. (By Mr. Samson.) Your last point was persons' buying income, No. 6, I think.

A. Yes, persons on relief. This is taken from"City and Community" booklet. The source data is "The Iowa Taxpayer", which is a publication of the Iowa Taxpayers Association, in its issue of July 7, 1958.

MR. EDELMAN: Just for the purposes of identification, that is not an official Government publication, is it?

A. No. They are more interested in the Government than in figures, however, if you read their documents. We have a ratio, trying to get comparative data and see where we stand, we have a ratio here of those on relief in these counties.

MR. EDELMAN: May I ask the witness to identify or explain what he means by "on relief"?

A. Yes, sir. The Iowa Taxpayers Association made a survey of all of the relief and welfare programs available in Iowa uniformly to cities. There were eight programs. Many of the figures, of course, are Federal figures, including the things like old age assistance, aid to dependent children, aid to blind. Many of them are financed by the local property tax, such as general county relief, soldiers' relief, hospital and medical care, county homes, state mental institutions. I have the figures of the number of persons under those programs, if you would like.

MR. EDELMAN: For the sake of the record,I think that our department does not agree with terming the grants made for the relief of distressed people, aid to dependent children, aid to the blind, aid to the aged as in the category of relief.

A. Let's put it this way--

MR. EDELMAN: We will accept the definition of relief as individuals who are assisted by Government funds.

A. Very well.

MR. EDELMAN: All right.

A. Tax-supported welfare assistance will suit me.

MR. EDELMAN: All right, that is fine.

A. Recipients under eight programs are as follows as far as the number, the ratio. We have here 16 counties in Iowa. These are the 16 largest counties in Iowa and contain the largest cities in order of size from 1 to 16. We have in Story County, for instance, 1 out of every 43 persons is under or getting payments from one of these eight programs. In Johnson County the ratio is the same, 1 out of 43. Des Moines, 1 out of 41. Clinton, 1 out of 36. Scott, 1 out of 34. Dubuque, 1 out of 33. Black Hawk, 1 out of 33. Linn, 1 out of 33. Marshall, 1 out of 32. Lee, 1 out of 32. Cerro Gordo, 1 out of 29. Polk, 1 out of 24, Muscatine, 1 out of 23. Wapello, 1 out of 22. Pottawattamie, 1 out of 22. And Woodbury, 1 out of 22. We are among the lowest, or let's say the highest proportion of popluation of any of the 16 counties in the state. This cannot be overlooked when one is considering financial capacity.

One other thing relates to assessed valuation of property in the city. I have here the 13 largest cities in Iowa.

Q. (By Mr. Davis.) On what page is that, Mr. Bodine?

A. This is taken from the city's budget report or appropriation report of 1959.

Q. Right.

A. Page H of the budget message already referred to by counsel in this hearing, or already excerpted from. Of these 13 cities the assessed valuation has gone up over 50 percent in all but 2, in the period 1949 to 1958. These figures are taken from the State Auditor's Report of assessed valuations. The two that haven't gone up that much are, first, Council Bluffs, whose assessed valuation has gone up 41 percent, and the other is Sioux City, whose assessed valuation has gone up 16 percent. I have one other remark I would like to make from this same budget report, although, Mr. Counsel, I think those are the seven points on that subject. There are other indices, however, of work to be done which will be demanded of these same people who have this rather unusually depressed area.

Q. Will you relate those? What is ahead of Sioux City, work that has to be done?

A. I would just like to just briefly cover this, not at all at length. I think one interesting index--and how do we measure this thing? I don't know. We just go by what we are able to find out, which any of you gentlemen can also. It has to do with the miles of streets that are paved or unpaved in this city. A survey was taken by the city staff in 1958. It revealed that there was 133 miles of Streets that are unsurfaced in this city. This is 37 percent of the mileage of streets in this city. In addition to that, 68 percent of our alleys are unpaved. We are trying to tackle and improve the depressed economic condition which this city faces. We have a program. There are 13 major large-scale undertakings of central importance which are listed in the budget report of 1959. We have a sanitary sewer collection system among them. I would like to read them to you briefly.

Floyd River flood control project; out-of-the-mud program, which contemplates the paving of 15 miles of streets per year; city street connections with interstate highway, which the interstate highway does not pay for and which costs the city a great deal of money; centralized shop and yard for city operations. We have no centralized garage. Our equipment costs are way above what they ought to be, mostly for the lack of investment in funds to have a central facility. Urban renewal projects at several locations, which requires, as you know, at least a third city contribution to take advantage of the two-thirds Federal funds which are available. Perry Creek flood control project, and then sanitary sewer collection system and possible sewage treatment. These are listed on page G of the budget message. There are six other items listed in here; not all of them involve major capital outlay. I would like to read them, however.

Creating job opportunity by encouraging industrial development, comprehensive planning program all elements, which is about 65 percent complete now. The city has a planning staff of six persons on this. Annexation south of the city, developing barge river traffic and dock and harbor facilities, and reorganization of the city's recreational and cultural facilities. They all will involve money, but they are not as distinct capital projects.

Conclusions, counsel, I think that--

Q. (By Mr. Davis.) Well, I had better ask you this question, Mr. Bodine, and this is a yes or no question. With the knowledge that you have of the situation in Sioux City, the factors that you have discussed and the studies that you have made, do you have an opinion as to whether the construction of the sewage disposal system as proposed to the city is economically feasible at this time? Now, that question is just do you have such an opinion?

A. Yes, sir.

Q. What is that opinion?

A. The opinion is that it is definitely not economically feasible, in my opinion, nor legally feasible under the present plan.

MR. DAVIS: You may cross-examine.

MR. EDELMAN: I did not understand that this witness had been qualified as a qualified legal expert.

MR. DAVIS: What is your objection, then?

MR. EDELMAN: He said in his opinion it wasn't legally feasible and I move to strike that part of his answer.

MR. DAVIS: It may go out.

CROSS-EXAMINATION

BY MR. STEIN:

Q. You referred to seven indices and then you had an eighth minor index. What was that eighth?

A. The eighth, sir, related to dirt streets, but it was really not an index of the same kind that the other indexes were.

Q. Also in your budget message you were reported to have said, tell me if this is correct, that you said in your budget message that "An important item in the city's tax structure will be the revaluation of taxable property now under way here. Had the assessment of Sioux City property for tax purposes been realistically adjusted over the last decade, the city tax rate here could have been reduced rather than increased by 7.18 mills this year and still have yielded the same amount of tax dollars as budgeted". Is that a fair statement of yours as made in your budget message just a few days ago?

A. It is technically correct, sir. It has to do, as you see, this whole subject is the tax rate mirage. If one considers tax rates, and forgetting the content of the meaning of my point that to concentrate on the rate question purely as we have been locally, which is not a matter of your concern, I realize--

Q. No, all I--

MR. DAVIS: Let him finish his answer.

Q. (By Mr.Stein.) Yes. Pardon me.

MR. DAVIS: Go ahead.

A. If we concentrate on the question of tax rate increases alone--

Q. (By Mr. Stein.) It is not responsive, but go ahead.

A. --we are not getting a comparable picture of the other cities. Other cities' tax rates have risen also. Our rate has gone up as well. But in the other cities the valuations have risen and ours have risen far less so. Consequently, the tax dollars which the city gets are considerably less than these other cities and it is for local consumption and reasons that this is in there because that is an issue locally, although I realize it is not an issue to you.

Q. No. All I wanted to do was to clarify this. You talk about had the Sioux City property for tax purposes been realistically adjusted. Now you read these tax assessments as part of an economic index. Are we to assume that the lack of a readjustment of the tax assessment base was because of poor economic conditions or just because the city didn't realistically adjust them? I find it hard to reconcile both statements.

A. Are you asking me the question?

Q. Yes.

A. I don't know what you are to assume, but I would say I would assume a little of both.

Q. That is a fair statement. Now, I was very interested in your list of all these projects which presumably are available under your long-range plan and you find that they are maybe economically feasible, including industrial development, Floyd River flood control, getting the city out of the mud by paving the streets, connecting city streets to the interstate highway, a centralized shop and yard for city operations, comprehensive planning, annexation south of the city, highway improvements in the city, urban renewal projects at several locations, development of river traffic and dock and harbor facilities, reorganization of city recreational and cultural facilities, Perry Creek flood control, and an interceptor sewer system and possible future sewage treatment facilities. Now, with that preface, is it your experience as a City Manager that sewage treatment facilities, which sort of helps the people downstream, always manages to wind up at the bottom of the totem pole?

A. What is the time and place of your "always"?

Q. In your experience, generally. Let's change "always" to "generally".

A. I would say the answer is no. It depends on the time and place again. In the last town I was in, Rock Island, the treatment plant was built largely by the Federal Government under the WPA. They had an opportunity there. In another town I was in they didn't have one. It depends on time and place and mostly economic feasibility and these many factors I have considered.

MR. STEIN: We have no further questions.

MR. SAMSON: I have a question or two, Mr. Bodine.

Q. (By Mr. Samson.) Isn't there an association or a conference of City Managers in the United States?

A. Yes, sir.

Q. Do you belong to that association?

A. Yes, sir.

Q. Have they taken a position on stream pollution officially in the way of resolutions at their conferences and sewer treatment and the construction of --

A. I believe they issue no such policy statements one way or the other. But I am sure their position would be this is a desirable thing and the main question, however, is what is the economic feasibility.

Q. Do you think that in their literature you will run into this question of economic feasibility?

A. In my literature?

Q. No, in the literature of the Association of City Managers.

A. Well, certainly you can find material on economic feasibility in the City Managers' News. They don't issue policy statements, sir. Perhaps that should be clarified. They don't come out with platforms, like, for instance, the United States Municipal Conference does or the United States Conference of Mayors does. It is simply a service organization for City Managers and they have a library at 1313 East 60th Street in Chicago. We can write and get periodicals from other people, but the City Managers' Association has no policy statements so far as what they stand for or what they stand against and that kind of a thing. Only as regards technique or methods of going about how to find out that kind of thing, they do that.

Q. I have one other question here. Do you have available to you or do you know of comparative rates on the sewer use fee in other cities besides the one, of course, that we are involved in here and that is Sioux City? By that I mean to say, that your fee here is a minimum fee of $8.50 a year, isn't that right?

A. Yes, sir.

Q. Now, are you aware of the fact that at Omaha, Nebraska, the service fee there comparable to your fee is $9.60 a year?

A. If you use the -- No, I am not, sir. If you use this recommendation that you have been referring to here, you are only going to increase the income to the city of a hundred thousand dollars a year over the two seventy we are getting now.

Q. But won't that reflect itself, then, in funds and monies available to the ultimate retirement of revenue bonds should such procedure be followed by your body?

A Yes, but revenue bonds are a portion of the picture. You also want to get 2.8 million dollars from G.O. bonds, plus a Floyd River project makes it impossible, there just isn't that much money there within the city's dollar limit, if I can't use the word "legal", it just doesn't add up. You want to take 2.8 from general obligation bonds to finance this sewer project, and we are talking about 3.5 million for the Floyd River project, which is a total of 6.3 million. The total bonded uncommitted debt right now is only 5.7 and this assumes that we are not going to have any other projects at all in the city. So there is no sense talking about 50 percent of the water rate, sir. It is considerably more than that.

Q. When did you become associated with the City of Sioux City as the City Manager?

A. January 8, 1958.

Q. And was there a City Manager here before you came to this town?

A. Yes, sir.

Q. And did he resign?

A. Yes, he did. Took another position.

MR. SAMSON: Thank you.

CHAIRMAN WILSON: Any other questions, gentlemen?

MR. KURYLO: I have a few, sir.

Q. (By Mr. Kurylo.) Based upon $8.50 a year, the minimum rate for--that is your present sewage rental fee, it amounts to 2-1/3 cents per day. I assume that you would admit that your community finds it economically feasible to pay that amount now because they are doing it, 2-1/3 cents a day for the present sewage rental fee, is that correct?

A. Now, what do you mean, my community, sir?

Q. As I understand, the sewage rental fee is $8.50 a year.

A. This is on those that have -- Yes, sir, that is right.

Q. Connection. Which amounts to 2-1/3 cents per day?

A. Yes, sir, or I assume that is right.

Q. In your judgment would it be uneconomical for them to double that amount, regardless of whether it came from a sewage rental fee or some other funds, a combination of sewer rental fee and any other source of funds you have available?

A. No, I mentioned that the debt limit would interfere.

Q. What if more came out of the sewer rental fee than is now set up under the proposal in Government No. 8?

A. Our engineer didn't report what it would have to be, sir, to cover the entire amount and I just don't know.

Q. But you would not have a limitation on your indebtedness if you had the entire income--the entire bond issue pledge the receipts of the sewer rental fee and you increased the sewer rental fee to an appropriate amount, would you?

A. We wouldn't have what?

Q. You wouldn't run into the problem of a statutory debt limitation?

A. That is correct.

MR. KURYLO: I have no further questions

CHAIRMAN WILSON: Any other questions, gentlemen? That is all.

(Witness excused)

MR. DAVIS: The City has no further testimony.

CHAIRMAN WILSON: Has the Government any further testimony?

MR. STEIN: The Government has no further testimony.

MR. SAMSON: What about the industries?

CHAIRMAN WILSON: There were certain industries that asked to have an opportunity to present evidence.

MR. SHULL: Mr. Chairman --

CHAIRMAN WILSON: Is it going to be possible for you to present the evidence on behalf of the industries, let's say, by 1 o'clock?

MR. SHULL: It will, depending on the cross-examination of the Board and the Government. I don't anticipate too much.

CHAIRMAN WILSON: Well, we don't want to cut you off, but we would like to get through with the testimony before we take a recess for lunch, if possible.

MR. SHULL: Very well. I appreciate that. And if the Board would prefer not to hear industry here--I don't know, Mr. Chairman, just how much industry is dragged into this thing by the notice of the hearing, but I assume that since there are a number of them that were notified that appearances were in order and that those who chose to follow up with some statement should make it. You have been through these hearings before and you no doubt understand the position of the various parties who were notified.

CHAIRMAN WILSON: Well, the position of the Board is that this hearing is wide open to any interested party.

MR. SHULL: I see.

CHAIRMAN WILSON: So you may proceed, then, to offer any evidence you wish in behalf of the industries that are parties to this proceeding and we will go along and see how far we get up until 1 o'clock.

MR. SHULL: Thank you very much, Mr. Chairman. And I will hurry right along.

I have representatives here, officers of three of the parties who have been named in the notice of this hearing, that is Swift and Company, Armour and Company, and the Sioux City Stockyards Company. These parties were likewise named in the conference that was held here in July of '58 and were also invited to attend and did attend the hearing in Des Moines in October 1924 at the invitation of Dr. Houser of the Iowa State Health Department.

MR. DAVIS: You meant '54, Mr. Shull?

MR. SHULL: '54. Didn't I say that?

MRS. RANKIN: You said '24, Mr. Shull.

MR. SHULL: Oh, I beg your pardon.

MR. DAVIS: I also question the use of your word "invite", but go ahead.

MR. SHULL: Mr. Cowan, will you come forward, please.

CHAIRMAN WILSON: Have these gentlemen been sworn?

MR. SHULL: No, he has not.

CHAIRMAN WILSON: Will you see if the clerk is available?

MR. SHULL: I think I could save time if I had three of them sworn at once, don't you?

CHAIRMAN WILSON: Yes, if the clerk is available.

SECRETARY AYERS: The clerk of court's office is closed.

MR. KURYLO: Mr. Davis is a notary.

MR. SHULL: Can't you administer oaths?

MR. DAVIS: I think he can, but if there is any question about it I am a Notary Public and I have the power in the State of Iowa. I presume we are still in the State of Iowa.

MR. JONES: Let's go.

MR. EDELMAN: We would be glad to accept Mr. Davis's offer. Thank you.

CHAIRMAN WILSON: It is agreeable with the Government that the oath will be administered by Mr. Davis as a Notary Public.

MR. EDELMAN: No objection.

(Witnesses sworn.)

MR. SHULL: Mr. Cowan, if you will take the stand, please.

R. E. COWAN,

called as a witness on behalf of Swift and Company, being first duly sworn, testified as follows:

CHAIRMAN WILSON: May we have the full name of this witness.

THE WITNESS: R. E. Cowan, C-o-w-a-n.

DIRECT EXAMINATION

BY MR. SHULL:

Q. And you live in Sioux City, Mr. Cowan, and are the manager of the Swift and Company here at Sioux City?

A. That is correct.

Q. That is the highest ranking officer the Company has here?

A. In Sioux City, yes.

Q. Mr. Cowan, will you state just briefly what Swift and Company does here in the nature of manufacturing?

A. Well, we operate a meat packing plant that is confined to the slaughter of cattle and hogs and the various further processing of the meat from those particular species.

Q. And what wastes does your plant generate?

A. Oh, the normal packing house waste. I think it would save time to describe it in that manner.

Q. Yes. And where do you dispose of this waste or how are you disposing of it at the present time?

A. Into the Floyd River.

Q. Did you--

MR. SHULL: If I can lead a little it will help things.

MR. STEIN: Go right ahead.

Q. (By Mr. Shull.) Did you cooperate with a study which the city made here in 1917 and which is represented here by Government's Exhibit No. 8?

A. You said 1917, Mr. Shull.

Q. 1957.

A. Yes, we did.

MR. SHULL: The result of this long week here is beginning to tell.

Q. (By Mr. Shull.) In just what way did Swift cooperate in this, Mr. Cowan?

A. Well, the city retained outside engineering people to make a study of the entire sewage disposal problem, as I understand it. We were involved only in the effort they made in determining the loads that would be placed on a proposed sewage disposal plant by particular individual industries in town, and in connection with the outside engineers' work to determine the loads from our plant we had engineers out here from Chicago, as well as our local people, and we helped them in every way we could to make their determinations as it concerned our plant.

Q. And is it a fact, Mr. Cowan, that plate No. 5 here of the Government's exhibit is, as far as you know, a result of their findings?

A. That is true. But I think that should be further qualified to this degree, that that study, of course, was made at a time when we had no semblance of any pretreatment or screening or anything like that, and we had it understood with the engineers at the time the study was made that when and if a sewage disposal plant was established in Sioux City we would not be putting that load into the plant, that we would do some primary treatment of our own in order to reduce that load.

Q. That is what I wanted-- That is the explanation I wanted you to give. Now, Mr. Cowan, you will recall in the conference that was held here under the present law, presided over by Mr. Stein in July, that one of the recommendations there was that you furnish the city, I believe by January 1, 1959, with the waste load that you would put on a proposed sewer system. What, if anything, did Swift do in connection with that finding?

A. Well, as I related a few moments ago, we assumed that we had satisfied that obligation when we cooperated with the engineering firms retained by the city to develop that same information.

Q. And, therefore, you did not undertake a further survey, but relied upon the one that was made --

A. That is right.

Q. --and reported to the city's engineers?

A. Yes, sir.

Q. As a matter of fact, Mr. Cowan, that would contain all of the information, practically, that the finding requests, would it not?

A. We would have exactly duplicated what the engineering firms developed, yes, sir.

Q. Yes. Now, another finding was made at that conference of Mr. Stein's in July asking that you take steps to eliminate your paunch manure and waste by Setpember 1, 1958. That would have allowed you just about 30 days. What did you do about that finding?

A. Well, in order to do the job in what we considered to be the most logical manner, it would have been completely impossible to have complied in a period of 30 days. So we wrote to the Iowa State Department of Health and requested that that time be extended for 12 months, in order to enable us to make the necessary installations to comply completely by September 1, 1959.

Q. And what did you receive in the way of an answer to your request?

A. Well, we were advised by the Iowa Department that inasmuch as the conference had been held under the jurisdiction of the United States Department of Health that they were not in position to pass on our request, but that they had referred it to the Federal people and they quoted from a letter received in reply from the United States Department which, while it didn't specifically give us an extension, said that inasmuch as we had outlined to them what our plans were in order to comply that they would consider we were acting in good faith and there would be no action taken at the moment.

Q. As a matter of fact, the difference rose, I think, because you were contemplating doing more, really, than the conference had suggested, isn't that correct?

A. Well, it could be interpreted that way, I would think.

Q. Yes.

A. I hadn't thought of it in that light, frankly.

Q. Well, anyway, what did you do?

A. Well, we immediately went to work to go beyond the very temporary measures that we could have taken and complied, maybe, in 90 days or something.

Q. Well, that is what I meant to bring out.

A. But we went to work and prepared all of the engineering studies, got the estimates of cost, and calculated all of the loads that would be imposed so as to get adequate capacity. That work has all been completed. We have estimated the cost of it and have submitted a proposal to our general office in Chicago to authorize the necessary funds to go ahead with the installation so that it can be operating by September 1, 1959.

Q. Mr. Cowan, just what, just briefly, will those in-plant procedures do? What is their objective and what will they do?

A. Well, the objective is to remove all of the screenable solids, and of course we have always operated catch basins, as we call them, or grease traps as they are also known. In other words, we will be set up to remove as much of the grease, fat and solids of any other character as we possibly can from all of the effluent from the plant.

Q. And without committing your Swift and Company to any program here which you wouldn't have any right to do, I will ask you if you know of any reason why Swift and Company will not cooperate with the city in a comprehensive sewer plan here?

A. Well, yes, that has been our intention all along.

Q. Yes.

A. Of course that is something that I wouldn't be the final authority on, because it can't be decided locally. But I am sure that our company would welcome an opportunity to negotiate with the city in a cooperative manner concerning this sewage disposal problem.

Q. Yes. And as a matter of fact, I assume you pay now a water rental, don't you, a sewage rental here?

A. I cannot answer that question yes or no. I don't know. Most of our water supply is obtained from wells on our own property.

Q. I see. So you don't know just how much water you are using from the city?

A. No, sir, I don't.

Q. It is a fact, isn't it, Mr. Cowan, that directly north of what is called the stockyards area, going up the Floyd to the northern part of the City, which has been referred to here as Leeds,it is a fact that there are about 16 or 18, as I recall it, city sanitary sewers that dump into that river?

A. Well, I don't know. I heard that mentioned in this hearing previously.

Q. You know there are sewers up there?

A. Oh, yes, I understand there are.

Q. Yes.

A. I could say I know it, I have been told often enough.

Q. So, in other words, the water is pretty well polluted when it gets down to the stockyards district?

A. Well, that can be observed by looking at the Floyd above our plant, yes, sir.

Q. And your plant, as I recall, is the farthest north in the stockyards district?

A. In the stockyards district, yes.

MR. SHULL: I believe that is all. What I wanted to show particularly, Mr. Chairman, is that these people are proceeding in the spirit of the conference, I am sure, and will cooperate in any way with a comprehensive plan here for sewage in the city.

CHAIRMAN WILSON: Any cross-examination, gentlemen?

MR. STEIN: No questions.

CHAIRMAN WILSON: Members of the Board?

MR. SAMSON: I just had a question, Mr. Cowan.

Q. (By Mr. Samson.) I have some information here on prior testimony that the over-all cost of the treatment here, including interceptors, is $7,200,000, of which about $1,000,000 have been allocated as the part which industry was to take up. Now, had industry pretty well agreed to pick up the tab on about $1,000,000 of that ticket with the city at that time?

A. To my definite knowledge, no industry in the area involved has made any commitment of any kind as to cost on this thing, either to the city or as an individual installation.

Q. I believe that there are some engineering reports and there was some testimony that it was to be divided between industry and the city of Sioux City, and I just wondered whether there was any agreement in connection with the ultimate disposition of that wort of an arrangement, as far as you know?

A. My understanding is that the million dollars allocated to industry was a recommendation of someone.

Q. And industry hadn't acted?

A. To my knowledge industry has not accepted that, no, sir.

MR. SAMSON: Thank you very much.

MR. SHULL: When you speak of industry you are referring, I presume, to all of the industry here in the city?

MR. SAMSON: That is right.

MR. SHULL: Which I believe would number, someone put in the evidence, four or five hundred concerns.

Pardon me, Mr. Chairman. I didn't mean to interrupt you.

CHAIRMAN WILSON: Your observation was quite in order. Any other qeustions?

Thank you.

(Witness excused)

R. A. RODEEN,

called as a witness on behalf of Sioux City Stock Yards Company, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SHULL:

Q. Will you give your name to the reporter?

A. R. A. Rodeen, R-o-d-e-e-n, President and General Manager of the Sioux City Stock Yards Company.

Q. Mr. Rodeen, you live in Sioux City?

A. I do.

Q. Are a graduate of the University of Iowa College of Commerce?

A. I am.

Q. And how long have you been with the Sioux City Stock Yards Company?

A. Thirty-one years.

Q. And within the last two years you have been made President, you worked up from the bottom of the column, isn't that correct?

A. You can say it that way if you want to.

Q. Mr. Rodeen, will you tell the Board here just exactly what the procedures--or not procedures, but what the Sioux City Stock Yards Company does in connection with the so-called yards industry here or packing industry.

A. The Sioux City Stock Yards Company owns and operates a public livestock market. That is our primary business. We receive about four million head of livestock from the 28 midwestern states and it is fed, sorted, displayed and sold to buyers from about 40 states in the United States. In addition to this main business of ours we have land upon which are situated other related industries, among which are small, some them not so small, independent packing plants who have their own sewer outlets and everything to the various ways in which they dispose of their sewage.

Q. Now, Mr. Rodeen, speaking only for the Sioux City Stock Yards Company, what waste do you generate in the operation of your business?

A. In our business the only waste that we have is animal manure. We have no--There is no blood or no packing house waste or anything like that. It is purely animal manure.

Q. Any hay wastage?

A. The majority of it is hay. In the cattle and sheep divisions we feed entirely hay. These pens are dry cleaned.

Q. What do you mean by dry cleaned?

A. We go in there with mechanical equipment, pick up this manure, and take it over to our manure dump where is goes out to the country to the farms in our area. In the hog house we also dry clean the sales pens. That is done by an independent contractor, who then takes the corn and whatever refuse may be on the floor over to a washing plant on the Missouri River where the corn is washed and steamed to the requirements of both the Federal regulations and the state law, and then taken out to its feed lot out in the country. Now, since we were cited for this hearing or since the original conference last year there has been a bill introduced into both houses of the Iowa legislature, the Senate number is 490 and the House file number is 604; the Senate has passed their bill whereby they are eliminating the necessity of stockyards washing of grains, which means that--there is no question in my mind but what the House is going to adopt, they are going to pass it--that we will no longer through an independent contractor wash manure into the Missouri River.

In the other than sales bins in the hog house we have bedding in the springtime and that bedding is picked up in the spring, taken out to the manure dump and taken out to the farms just as the other is, and we do flush it downstairs after we dry clean the pens.

Q. That is the hog pens you mean are flushed?

A. That is right.

Q. As I recall, Mr. Hopkins referred to that the other day.

A. But they are flushed after they are dry cleaned twice a year.

Q. Is that water flushed down through the sewer into the Missouri?

A. That is right, some into the Floyd and some into the Missouri.

Q. I believe there was some testimony here that that water was not considered by the Iowa Public Health Department to require a discharge through a sanitary sewer but might be discharged through a weather sewer, is that correct?

A. I don't know what testimony; I haven't been here the entire period.

Q. Well, but you know about that?

A. As I recall, this Government Exhibit 8 shows that we dry clean our pens and there is no polluted discharge from the stockyards into the rivers.

Q. That is what--

A. Now, whether they consider the independent contractor whose operations were corn washing separately, I assume they did, but even that will be stopped.

Q. Then, in other words, Mr. Rodeen, are you at this time, as far as you can see, passing any effluent into the river that would cause pollution?

A. With the exception--

Q. Or is polluted?

A. --of this corn washing thing which is still going on.

Q. I see.

A. Which is under independent contract. I believe we add very, very little, if any. After all, there is five million gallons of water going into these sewers a day, plus whatever rain water may fall, and that is unpolluted water.

Q. What water is that you refer to?

A. That is water from the troughs in which livestock has water before them to drink.

Q. Are those troughs drained, then, out into the--

A. Each one of our troughs out in our stockyards sits over a manhole and the water comes in one end of the trough, goes past the livestock and down the other end into this manhole. Doesn't go through the pens at all, just goes from one end of the trough to the other.

Q. And then where does it go, out into--

A. It goes into the sewers that we have going into the river.

MR. SHULL: I see. I believe that is all, Mr. Chairman.

CHAIRMAN WILSON: Any questions?

MR. STEIN: No, no questions.

CHAIRMAN WILSON: That is all.

Q. (By Mr. Shull.) I take it, Mr. Rodeen, that you cooperated with the city in this study that is represented here by the Government Exhibit 8?

A. We did.

Q. And that your situation as was arrived at in that report is contained on plate 5 of this exhibit?

A. Plate 5, and I think a statement or two ahead of that plate.

MR. SHULL: And that is a matter of evidence here.

Thank you very much, Mr. Rodeen.

(Witness excused.)

CHAIRMAN WILSON: It is a little past 1 by the right time. I wonder if we can finish with a few more?

MR. SHULL: I have one more witness here only. He is the Manager of Armour.

CHAIRMAN WILSON: Go ahead. Put him on.

MR. SHULL: And that concludes our presentation.

VIRGIL O. EADES,

called as a witness on behalf of Armour and Company, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SHULL:

Q. You have been sworn in the group?

A. I have, yes.

Q. Give your name to the reporter, Mr. Eades, and your present employment.

A. I am Virgil O. Eades, E-a-d-e-s, General Manager of Armour and Company, Sioux City, Iowa.

Q. And how long have you been General Manager here, Mr. Eades?

A. Since June 1, 1958.

Q. How long have you been with Armour?

A. Fourteen years.

Q. Are you a college man, graduate?

A. Yes, sir, I graduated from the University of Illinois in 1941, in the College of Agriculture.

Q. And you have been with Armour ever since, practically?

A. From the time I was discharged from the service I have been with Armour and Company, yes, sir.

Q. Mr. Eades, will you--your operation there as far as the packing industry is concerned is much as Mr. Cowan gave just before? You heard his testimony?

A. Yes, sir.

Q. Yes.

A. It is--

Q. So I won't go into that.

A. It is similar to his with the exception that we kill lambs and Swift and Company does not.

Q. I believe in respect to Swift you are the larger packing house here, aren't you?

A. We are the largest, yes, sir.

Q. How many people do you employ there ordinarily?

A. Well, it is quite seasonal. In the fall of the year we will employ approximately 1,400. In the summer months approximately 1,100.

Q. Mr. Eades, you joined the Swift people, or perhaps you initiated it, asking for a continuance of the time in which to remove this paunch manure and hay which was given by the last conference?

A. That is right.

Q. And your experience as to that continuance was the same as related by Mr. Cowan, that if you proceeded with the procedures that you indicated you would--it would be considered a good faith action and in the spirit of the conference, if that is correct?

A. Yes, sir, we initiated that--

Q. Will you state what you did?

A. We initiated that action, first in writing to Mr. Houser of the State Public Health Department at Des Moines, who in turn related that this was a Department of Health Federal case in which he said at that time we would have to get approval from them for a delay or extension of time, and he in turn replied that inasmuch as we were replying in the affirmative that we would have an extension to September of 1959 to make final completion of a screening system of removing manure and paunch contents.

Q. Are you sure about that September 1? I feel that was the spriit of it, but I doubt if--I don't believe that they gave you that actual date. I think what they said was that if you proceeded as you had outlined it would be considered good faith with the conference.

A. You are correct. We originally asked for that date.

Q. That is right. That is right.

A. They did not answer to a specific date, but they said inasmuch as we were actually in good faith that that extension could be applied.

Q. As a matter of fact, your plans contemplated much more than the conference had indicated to you, isn't that correct?

A. That is right, correct.

Q. Now will you state to the board what you have done in carrying out the recommendation of Mr. Stein's conference here?

A. Well, at the conclusion of the conference that we had last July, if I remember correctly--

Q. That is right.

A. --we immediately proceeded with our engineering department in Chicago, our general headquarters, in proposing the plans of building the necessary installation of removing the manure and screening contents. However, at that time they felt that they could not meet the deadline that was originally proposed of September 1, 1958. And at that time I wrote to Mr. Houser and asked for this extension, which we have just mentioned. So after receiving his letter we then continued to proceed in studying the initital cost of material, the cost of installation of such a building of removing the screening contents or paunch manure, and at this present time we have concluded that--

Q. Engineering?

A. --work and at the present time our blueprints and our final plans are in to Chicago, our general headquarters, for approval and the appropriation of money to start construction. As to the date that we will receive the approval from them, I cannot answer you at this time.

Q. Your target date, however, is September 1, 1959?

A. That is correct.

Q. Yes. And now I know out here as a Plant Manager you can't commit the Armour Company, but do you know of any reason why they would not join into a comprehensive sewer disposal system here with the city if it is found that that is necessary?

A. No, sir, I do not.

Q. And you would expect them to do so, I presume?

A. I would.

MR. SHULL: I believe that is all.

CHAIRMAN WILSON: Any questions?

MR. SAMSON: I have just one question.

Q. (By Mr. Samson.) Does your company process a product known as a ham what am?

A. We certainly do.

MR. SAMSON: That is all.

MR. SHULL: Thank you very much.

(Witness excused.)

MR. SHULL: Thank you very much, the Board, for giving us opportunity to be heard.

CHAIRMAN WILSON: Counsel for all parties, is there anything further in the way of evidence to be submitted?

MR. STEIN: None for the Government, sir.

CHAIRMAN WILSON: What is the desire of counsel regarding closing arguments?

MR. DAVIS: I would like a few minutes to make some record first, if you have in mind deciding on whether to eat lunch.

CHAIRMAN WILSON: Do you want to do that now?

MR. DAVIS: Whatever is your pleasure, sir.

CHAIRMAN WILSON: How long will it take?

MR. DAVIS: A couple of minutes to make my record.

CHAIRMAN WILSON: Go ahead.

MR. DAVIS: I also would like to argue for, say, four minutes. Well, I mean I am just giving you an idea so you can make your plans, sir. But I want to make my record, that is for sure.

CHAIRMAN WILSON: Well, I am simply considering how much time more it is going to take to wind up the hearing completely. Are we going to be able to do that, including any motions you wish to make and supporting arguments and what the Government may wish to put in within the next few minutes or are we going to have to convene again after lunch?

MR. SHULL: Couldn't an argument be made in writing and filed with the Board?

CHAIRMAN WILSON: Not very well. The Board is going to have to convene right after the conclusion of the hearing and determine its findings. Because of the difficulty of getting all eight members of this Board together we intend to conclude our business while we are here.

MR. DAVIS: Well, I would think, then, that nothing would be lost as long as you are going to work this afternoon anyway to take a break for lunch and come back.

CHAIRMAN WILSON: Well, we would convene at the hotel, as far as that is concerned.

MR. DAVIS: Oh.

CHAIRMAN WILSON: If we can conclude the hearing now in a few minutes, we will proceed.

With that understanding, go ahead, Mr. Davis.

MR. DAVIS: Whatever your pleasure.

CHAIRMAN WILSON: Go ahead.

MR. DAVIS: At this time, at the close of all of the evidence, the City of Sioux City renews each and every objection made to the admissions of evidence in this matter and each and every objection raised to the admission of exhibits in this matter, and moves to strike from the consideration of this Board all of those matters which were objected to during the course of the hearing.

In addition thereto I think once towards the end of the day when we were trailing off with fatigue I neglected to move to strike the testimony of several witnesses who testified concerning taste and odor, so I now specifically move to strike all testimony of that kind for the reason that the same is irrelevant, immaterial and incompetent to prove or disprove any issue in this case.

I would like to be heard on one portion of this only, at your convenience.

CHAIRMAN WILSON: Proceed.

MR. DAVIS: Well, I will finish my record.

Subject, of course, to your ruling on my motion to strike the testimony, the City of Sioux City at this time moves that as a matter of law this matter be dismissed and no finding be returned against Sioux City for the reason that, one, there is no competent evidence to prove the matters in issue here before this Board, secondly that it affirmatively appears that this Board does not have jurisdiction to proceed in this matter.

Now, Mr. Chairman, in connection with the one item of evidence I want to specifically refer to, Exhibit 7 of the Government is the conference report from last July to include the transcript of testimony which was unsworn, and the entire exhibit has been admitted into evidence here. I can conceive that it is probably jurisdictional that the fact that certain conclusions were entered by that confernce should be in this record and to that extent possibly it is proper. But I respectfully urge you as Chairman at this time to strike from this record and the consideration of this Board the statements -- I can't call it evidence, it wasn't sworn -- but the unsworn statements and discussions, and so forth, that appear in this transcript of conference, which is Exhibit 7, for the reason that those statements deal with the very issue before this Board, they are hearsay so far as this Board is concerned, they are not competent or the transcript of those statements is not competent to prove or disprove anything before this Board, and I feel that since they deal with material issues, the very thing that is before you, the admission of them and the consideration of them would be prejudicial to the city's position in this case. My objection, of course, would include--I think I objected to them as being incompetent at the time, which I renew, of course, and that it constitutes heresay.

CHAIRMAN WILSON: These motions seem to present three questions and I think the first one that should be considered relates to Exhibit 7. I will ask Government counsel, what is your position regarding the motion as to Exhibit 7?

MR. DAVIS: You understand, I am just arguing my renewal of the motion, that is that portion of it, that is all I intended. I also object to the other exhibits, but I only wanted to be heard on this one.

MR. STEIN: We would have no objection to the motion if that is what the Board wants to consider, but we did not put Exhibit 7 in as probative evidence of a very high value since there wasn't sworn testimony. Our purpose here was to make available to a fact-gathering Board every bit of evidence that we thought was relevant to your inquiry. Now, Mr. Davis has used this, noting his objection each time, as a basis for many, many questions. Now, I take it he doesn't intend to strike all the questions he based on using this exhibit. If he does perhaps he wants to amend his motion. Certainly in the amended form we would have no objection.

CHAIRMAN WILSON: It will then be the ruling of the Chair that the contents of Exhibit 7, except so far as they relate to jurisdicitonal and procedural matters, will be stricken and disregarded as a basis for the findings of the Board. That will not extend to whatever evidence was presented here in connection with the examination of witnesses that were present that may have involved the contents of this exhibit and which are in the record.

MR. DAVIS: They will still be in, of course?

CHAIRMAN WILSON: They will remain in consideration for whatever value they are worth and subject to any objections that were made thereto.

As to counsel's motion for striking other evidence, the motion will be denied and the evidence will stand subject to the objections that were made thereto and subject to the final rulings of the Board in determining whatever evidentiary weight shall be given thereto as a basis for their findings.

As to counsel's general motion for the Board to conclude the hearing with no findings, that motion will be denied.

Now, is there any further submission to be made?

MR. DAVIS: No more record to be made. I suppose there is the question of argument.

MR. STEIN: No more record.

CHAIRMAN WILSON: It is understood, then, that the hearing may be concluded.

MR. DAVIS: So far as evidence is concerned, yes. We still have the question before you if you are going to entertain oral arguments.

CHAIRMAN WILSON: How long would you require for oral arguments?

MR. DAVIS: I would be willing to say a minimum of five minutes, assuming the Government would be bound by the same thing. I don't want to restrict them, however.

CHAIRMAN WILSON: Would counsel want a record made of the oral arguments? The regulations require that a record shall be made of all evidence and proceedings at the hearing and I assume that that would include oral arguments unless waived by counsel.

Have counsel agreed on this matter of whether a record shall be made of the oral arguments? Do you want that record made?

MR. DAVIS: Well, I am assuming if our arguments are as brief as I have indicated that it had just as well go in so we will have it complete.

CHAIRMAN WILSON: All right. Now, regarding the order of argument, I indicated at the outset that it would be in the reverse order of the taking of evidence, but I will hear counsel as to what is the procedure in the courts in this locality as to the order of argument, as to whether the Government should go first and the City reply and then rebuttal by the Government or whether the City should go ahead and then have the final argument by the Government.

MR. SAMSON: That is our law down here, the plaintiff goes first.

MR. DAVIS: You are correct in the statement of the order.

CHAIRMAN WILSON: That is, the City should go first and the--

MR. DAVIS: Oh, no, the plaintiff first and the defendant, in our civil practice, and then the plaintiff in reply.

CHAIRMAN WILSON: Very well, then.

MR. STEIN: The Government will waive a final summation or argument at this time if we may be afforded the privilege of an opportunity to rebut the argument of counsel for Sioux City if one is made.

CHAIRMAN WILSON: Very well. You may proceed, Mr. Davis.

MR. DAVIS: That conforms to our procedure too. However, it does limit him to rebuttal. I think you attorneys understand that.

CHAIRMAN WILSON: That will be understood.

MR. DAVIS: I just would simply like to point out to the Board at this time, not too long since we are all hungry, that I want to keep this within the bounds of what I said in my opening statement. I think some of you have appreciated the situation which the City found itself in several years ago. The reason for our saying that this far we go no farther can we go at this time, I should preface that by saying that the City does not contend that pollution in and of itself is a good thing. We admit it is a bad thing. The same as Mr. Huff in his testimony here concerning the boaters, we know that it is not desirable and we don't deny that the dumping of sewage does constitute pollution.

But our position was at one time that we were being pushed into this on a schedule which did not take into account the economic feasibility, and as one Government witness said, that that was our problem, that the people who were pushing us and quasi-legally threatening us concerning the matter of our sewage permits, our FHA housing, and so forth, that we could not proceed right then. Now, that was our position when the resolution referred to was entered into. Accordingly I have introduced into the record evidence concerning how far we had gone, what we are doing now, and where we are.

Now, basically, gentlemen, I start with this. We have agreed that there is a condition of pollution. We don't resist that at all. But I want you to bear these things in mind. What is involved here in your decision if not pollution, but does pollution exist so that the health and welfare of people in another state is affected. That is the question here. Not the advisability of putting in a sewage disposal plant, but does this health factor enter into it.

As I understand it, here is the record, without argument about whether the evidence is competent or not, but here is the evidence. One measure of pollution is the oxygen content. That has been admitted to be satisfactory regardless of the source of what is in the stream. That is out.

The next matter is the matter of coliform organisms, and your proof in this case by all witnesses is, first, that the recommendations, whoever they came from, are antiquated concerning that minimum; secondly that, as I recall it, the coliform count, regardless of who is causing it--I am not going to argue proximate cause with you at this time--regardless of who caused it, the coliform count at the Omaha water intake, as I recall it, is between twelve and thirteen thousand. Whatever the exact figure I would accept, of course, the correction. The testimony, without dispute, shows that that raw water can be successfully processed so that the resultant water is not pure, according to Mr. Filipi's and my discussion, but it is suitable for consumption. Now, that is the record.

The record further shows that raw water under present standards or means of purification up to one million coliform count can be successfully processed. Now, I say this to you. There is no evidence in here that anyone's health has been affected or will be by those coliform organisms in that count at Omaha which we limited this proof to. I submit to you that there are no actual instances of any damage to health because of this coliform count. In fact, the Government witness said that the water purification equipment has been so improved it can handle this water where the count is high and also that there is no record of any water-borne disease within the last 20 years. So with Mr. Filipi's unfounded statement going out yesterday by his own admission and now under motion, there is nothing before you concerning that.

So what is the third thing that could be proved? There is talk about viruses. There is not one word of proof in the record that any virus in this river water has ever caused any disease or ever will; there was no such proof available to the Government. As all of you gentlemen know, there was not a word of proof in the record.

Now, those are the only three things. I say this to you gentlemen of the Board, that there is a complete failure of proof of the--not their allegations, of course, but what they must prove under the law. All they have proved to you is this, that there are coliform organisms in the river, there are contraceptives floating in the river, and that the water smells and tastes bad at Omaha and St. Louis, and that is the extent of the proof that is before you even if you accept all of it.

Now, I was going to talk on economic feasibility but I won't. You heard the testimony and I remind you of it.

I will say just these two things to you in closing. You all know from the record and your own knowledge that Sioux City is the least offender in this matter of river pollution. You all know from the testimony here that as far as our progress towards abating it, if you will figure it out on a cost per capita basis, we are farther along than any city on the river. Now, I would assume from my knowledge of your civilian positions that you are interested in river pollution. The Government never did give me your positions or your addresses on the notices sent out, but as I have learned you have a genuine interest, as we all do, in abating pollution.

Now, if this record or if this law is to be used in cases where there is actual health hazard, or as in your hearings in Louisiana or in Wichita, if this law is to be used it can be very important to all the people in the United States, but I will say to you frankly and positively that if this record is submitted in this present form, with its complete absence of proof, if this matter has to go beyond here, that certainly that law is going to be emasculated and you have served no service to the public health service or anyone else, because this is the weakest case of any city along the river, and amazingly, astoundingly weak of proof as far as evidence of actual damage to health.

The other matter is this, that you gentlemen have a decision to make. Whether you agree with the City or not as to the effect of this on our securing the flood control project I don't know. Mr. Rietau has been scared to death for months concerning our financial ability and he showed it on the witness stand. You, I think, have a very unenviable decision to make. If you should feel that that would prejudice that Floyd River project, if you think we should spend $7,000,000 to keep contraceptives occasionally from floating down the river, from-- I forgot the fishing, but apparently assisting fishing, as that has been shwon,--if you think that on that record we should clean up the river more for commercial fishermen and kill off their fish, if we should make unsupervised swimming more feasible when it won't make a nickel's worth of difference to the water supply, we should spend $7,000,000 to do that and prejudice ourselves in such a way that we cannot take advantage of this other project where if the flood reoccurs 14 lives could be lost again, then I suppose that is your privilege. I wouldn't care to make that decision. In fact, it would seem to me that the lives of the people that could be saved in the flood control project should not be prejudiced by asking us to spend money over here where it hasn't been shown that as of now there is any real necessity for it, that in common sense and the interest of humanitarianism you should let us go ahead on a project that we know can involve the loss of lives and doesn't involve solely esthetic values, such as taste, odor, and better unsupervised swimming.

CHAIRMAN WILSON: Counsel?

MR. STEIN: We have a very short statement.

One, I think we have to point out the functions of the Board in the statute. The Board is to make findings whether pollution as defined in the Act--and I will come to that in a moment--is occurring and whether effective progress toward abatement is being made. We think, and here we markedly differ with Mr. Davis, that the testimony and other material placed before the Board presents overwhelming--overwhelming-evidence of pollution of the interstate waters of the Missouri River from the Sioux City, Iowa, area, that this pollution is subject to abatement under the Federal Act, and the endangering of health and welfare of people in another state is not just confined to water suuply and a few floating contraceptives. The massive interference with a variety of water uses we think has been amply demonstrated.

There is just one other brief point. The Act defines pollution subject to abatement under the Act as pollution "which endangers the health or welfare of persons in a state other than that in which the discharge originates."

All through this hearing and in the closing argument we have had some slight difficulty with the term or the meaning of the term "endanger" as it seems to be used by counsel for Sioux City. We just refer the Board to the definition of "endanger" in any standard dictionary, such as Webster's New International, Second Edition of 1951, also to the numerous court cases defining this term, and where the term "endanger" is used in the statutes the courts have generally held it to imply merely the possibility of harm and do not restrict its meaning to an act or situation wherein actual harm or injury must ultimately be inflicted.

Now, when we speak in terms of this quasi-legal forcing action, I ask the Board again to consider that this proceeding was started by an action of the state. The state, mind you, wherein Sioux City and these industries are located. Under the law the Federal Government had no choice but to embark on this. Under the law we had no choice, as we view it, but to call this hearing. I don't want to mislead you. We see our obligations under the law and we are duty bound to carry those obligations out.

Thank you.

CHAIRMAN WILSON: If there is nothing further, before I adjourn the hearing I just want to call attention to the members of the Board that we will be meeting after lunch.

(Off the record.)

CHAIRMAN WILSON: The hearing will now stand adjourned.

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REPORTER'S CERTIFICATE

I, VIRGINIA HOUGH RANKIN, do hereby certify that I was present at the time and place first hereinbefore set forth, the aforementioned parties appearing, that I took down in shorthand the entire proceedings had at said time and place, afterwards transcribed said shorthand notes, and that the foregoing pages constitute a true, correct, and complete transcript of my said shorthand notes.

Virginia Hough Rankin (Signed)

Shorthand Reporter